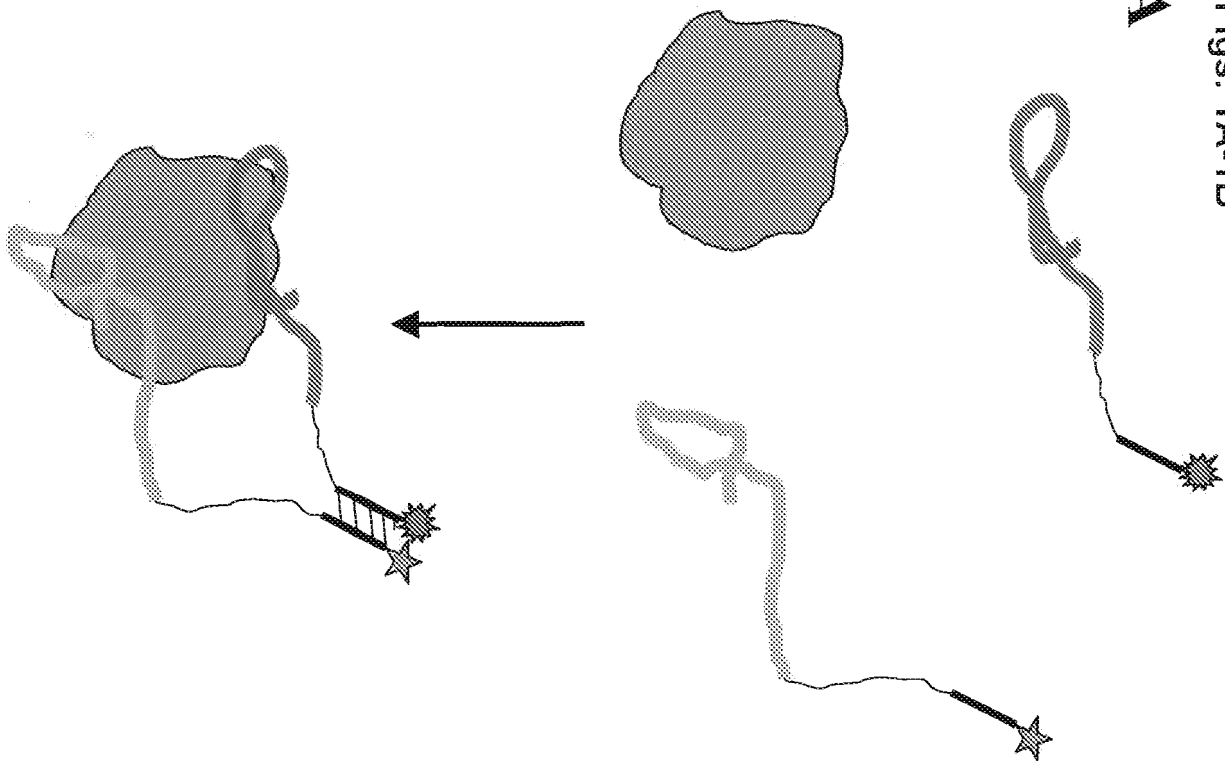
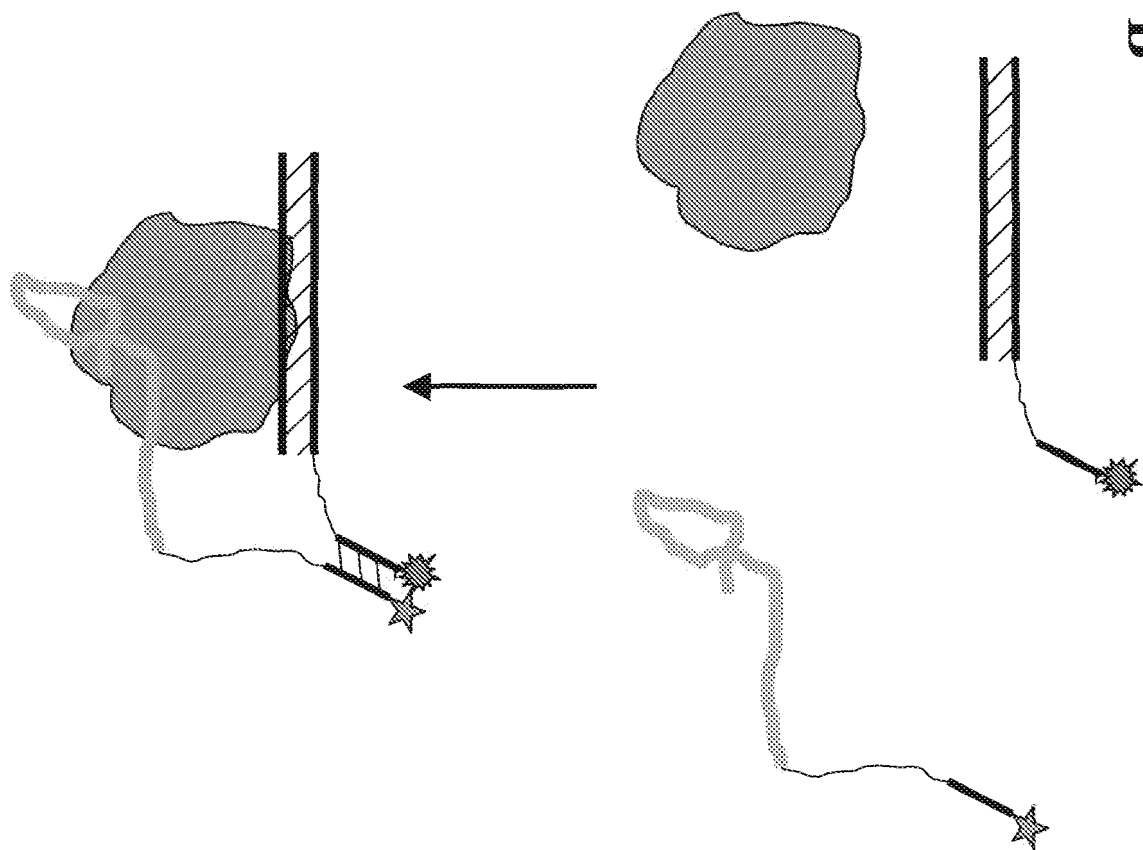


Figs. 1A-1B

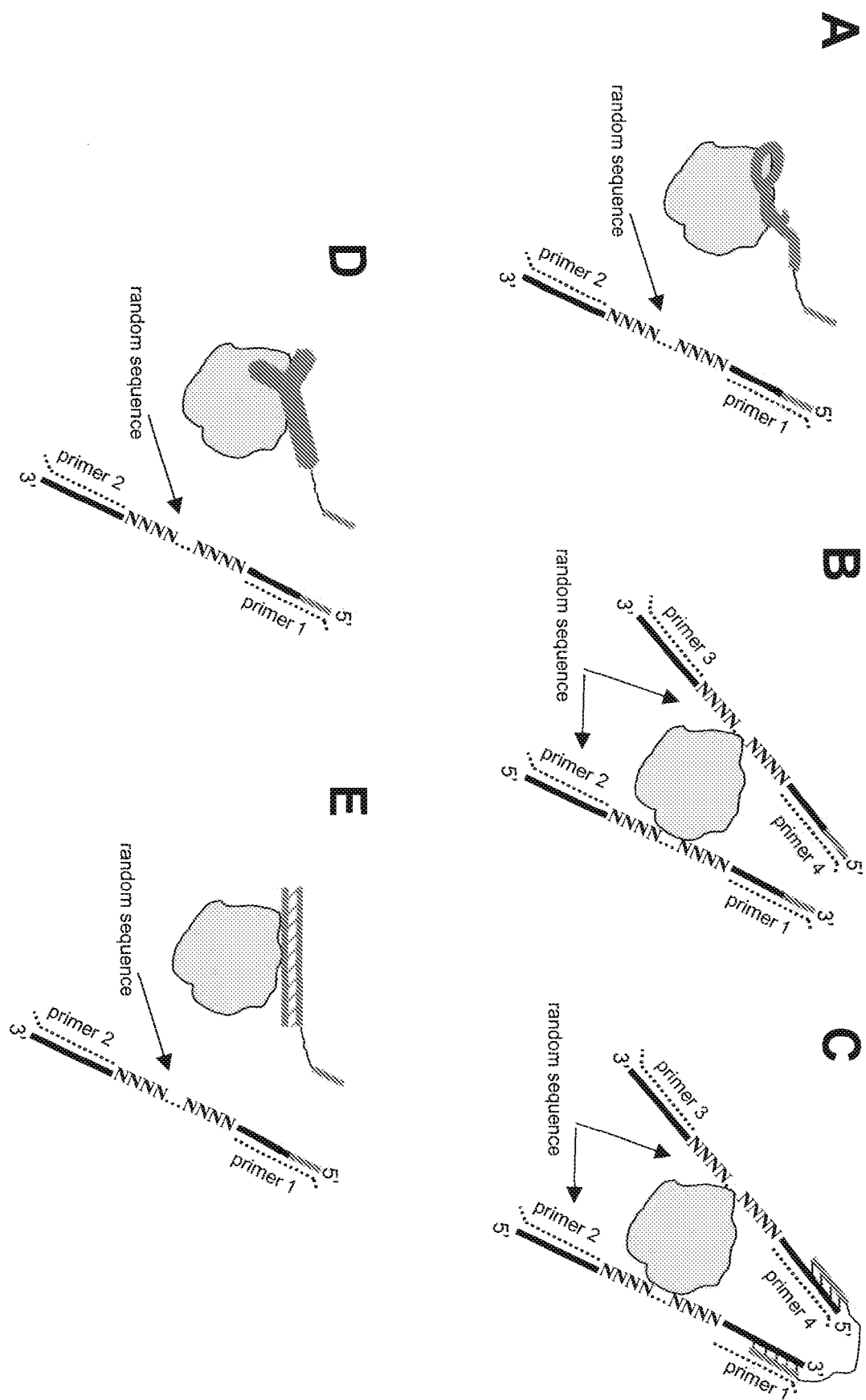
A



B

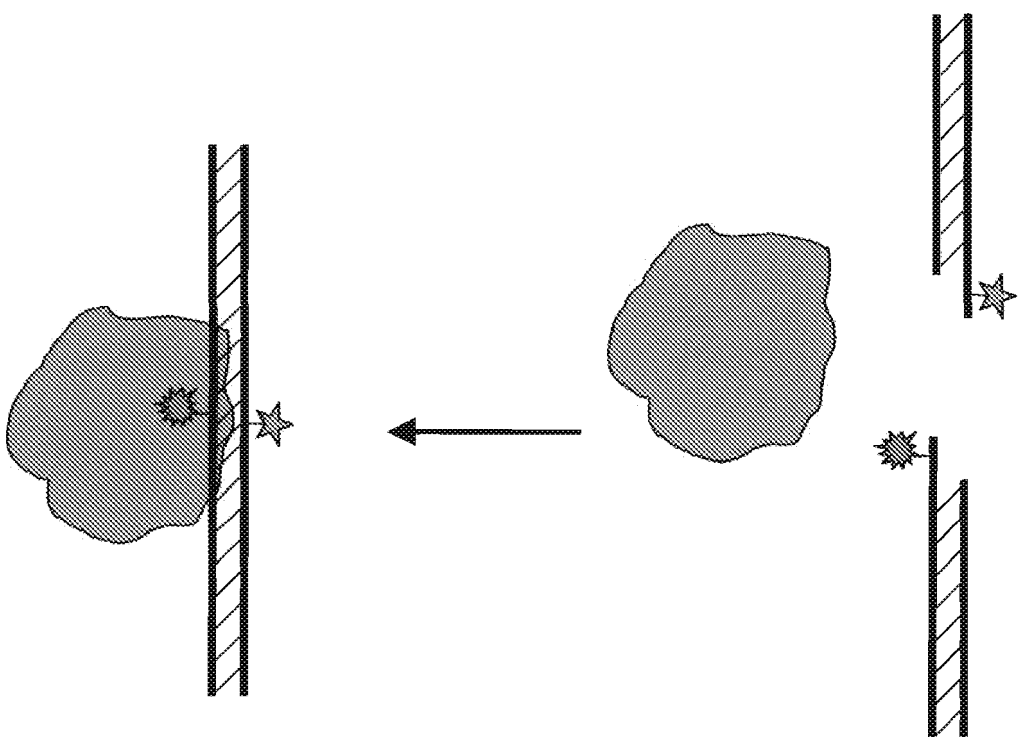


Figs. 2A-2E



Figs. 3A-3B

A



B

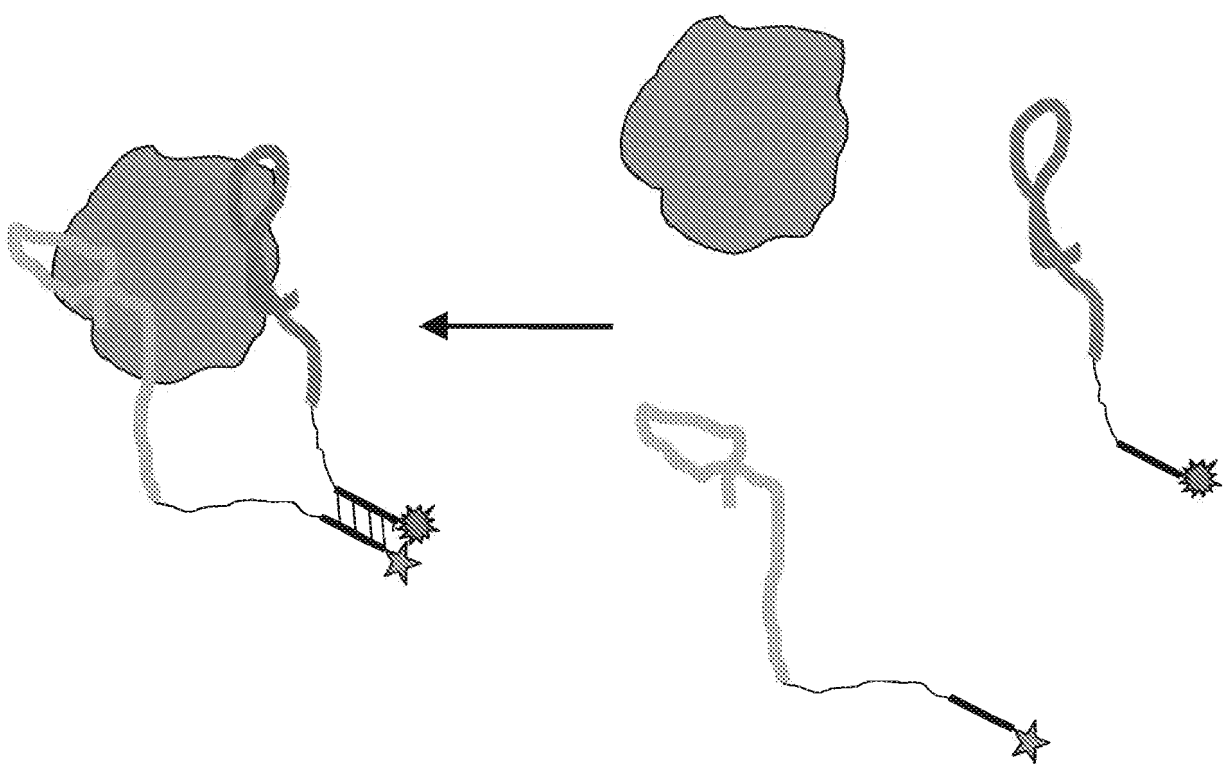
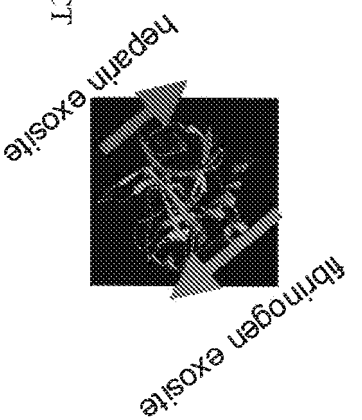


Fig. 4

60-18 [29]

G15D



**THR1**  
5' Fluorescein AGT CCG TGG TAG GGC AGG TTG GGG TGA CT



**THR2**  
5' Fluorescein GGT TGG TGT GGT TGG



**THR3**  
AGT CCG TGG TAG GGC AGG TTG GGG TGA CT



**THR4**  
GGT TGG TGT GGT TGG



**THR5**  
AGT CCG TGG TAG GGC AGG TTG GGG TGA CTX XXX XGG TTG GTG TGG TTG G



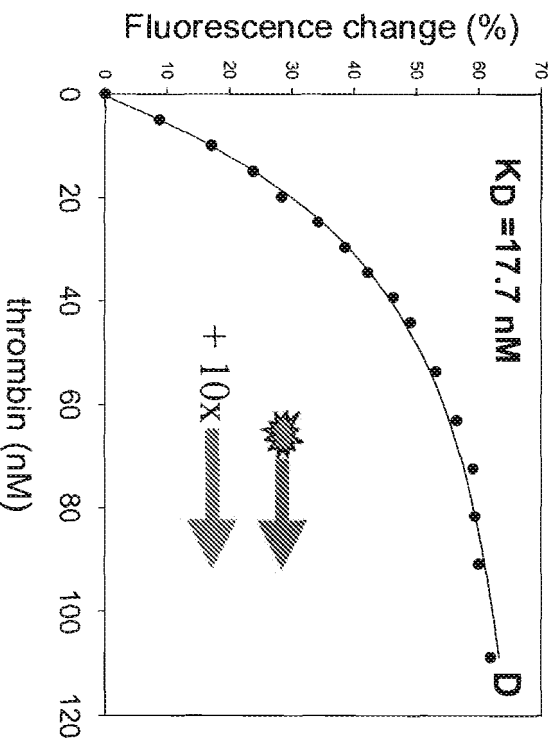
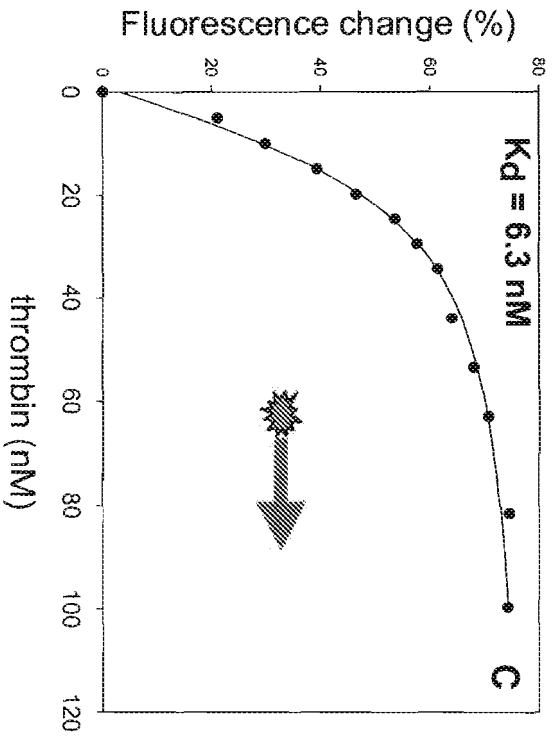
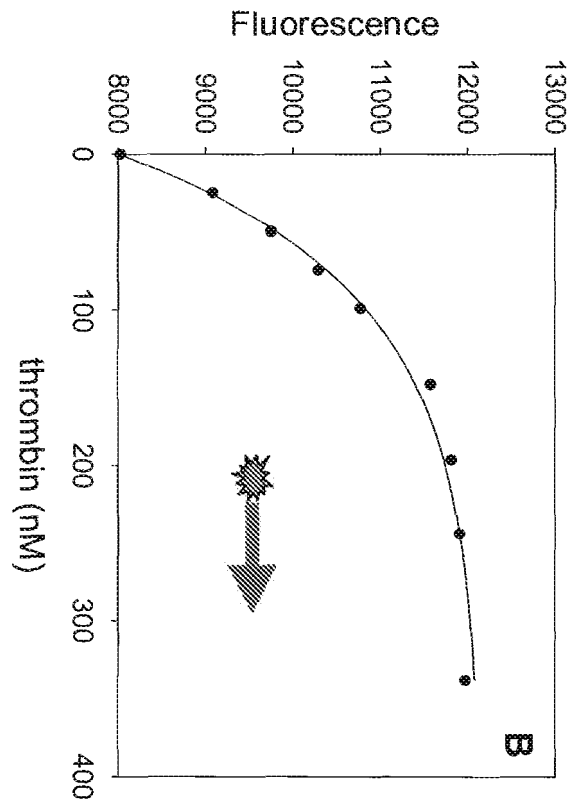
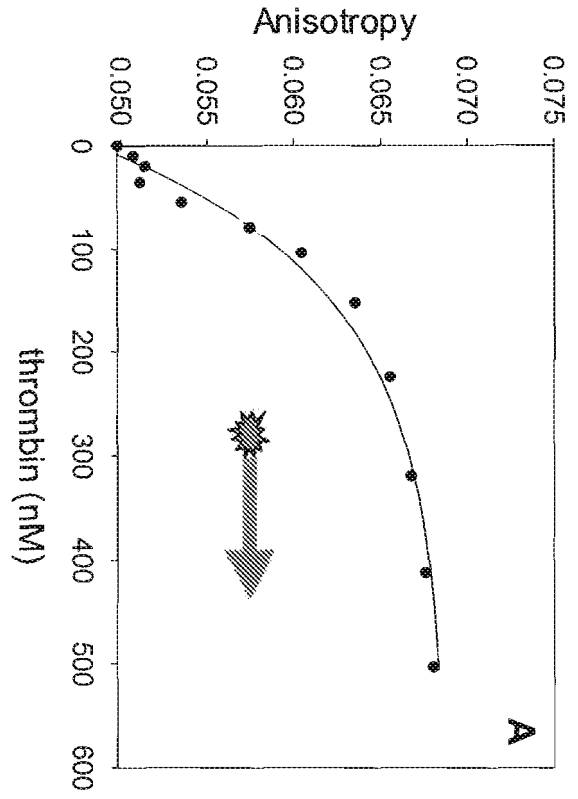
**THR6**  
AGT CCG TGG TAG GGC AGG TTG GGG TGA CTX XXX XXX GGT TGG TGT GGT TGG



**THR7**  
GGT TGG TGT GGT TGG XXX XXX XAG TCC GTG GTA GGG CAG GTT GGG GTG ACT

X = Spacer 18

Figs. 5A-5D



**Figs. 6A-6D**

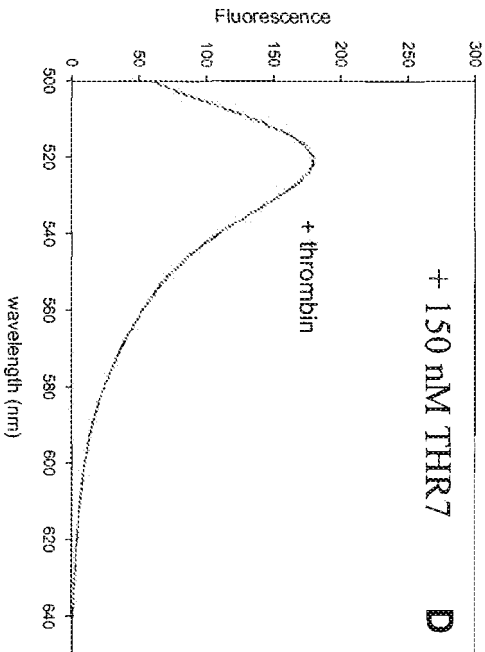
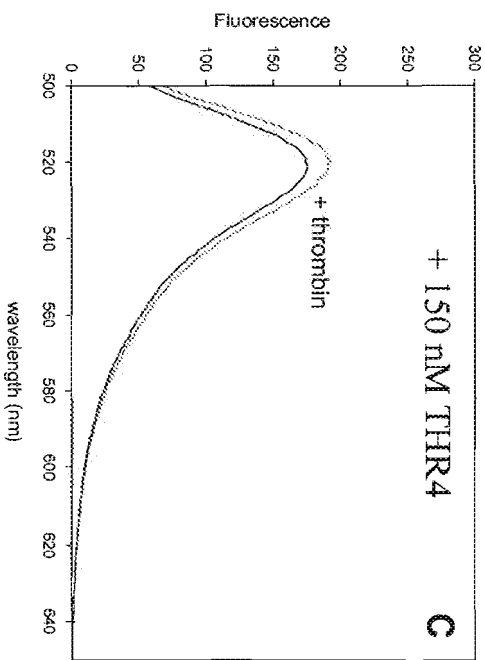
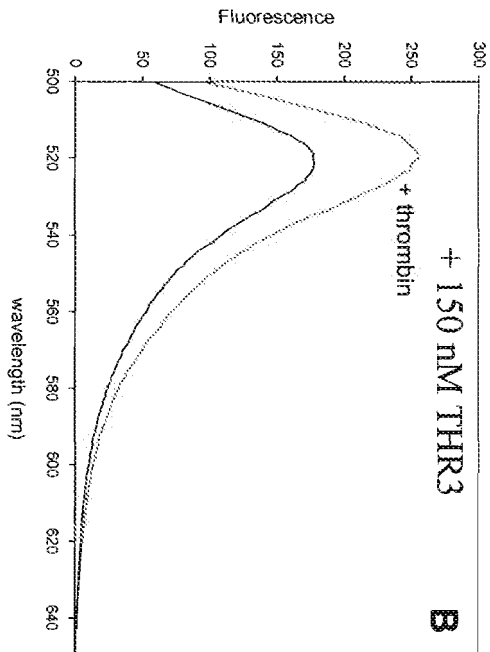
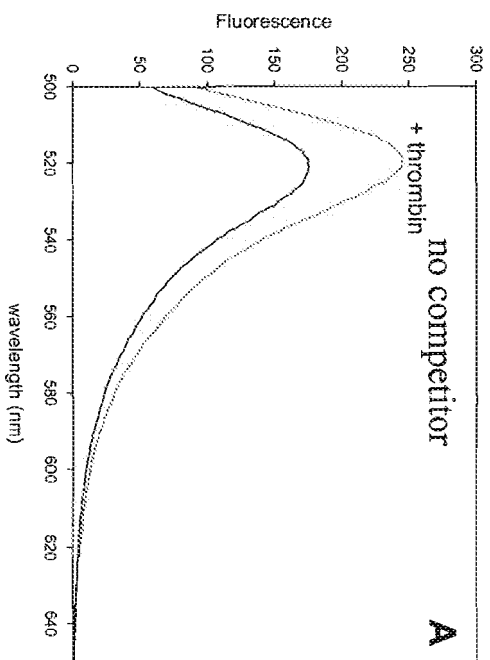
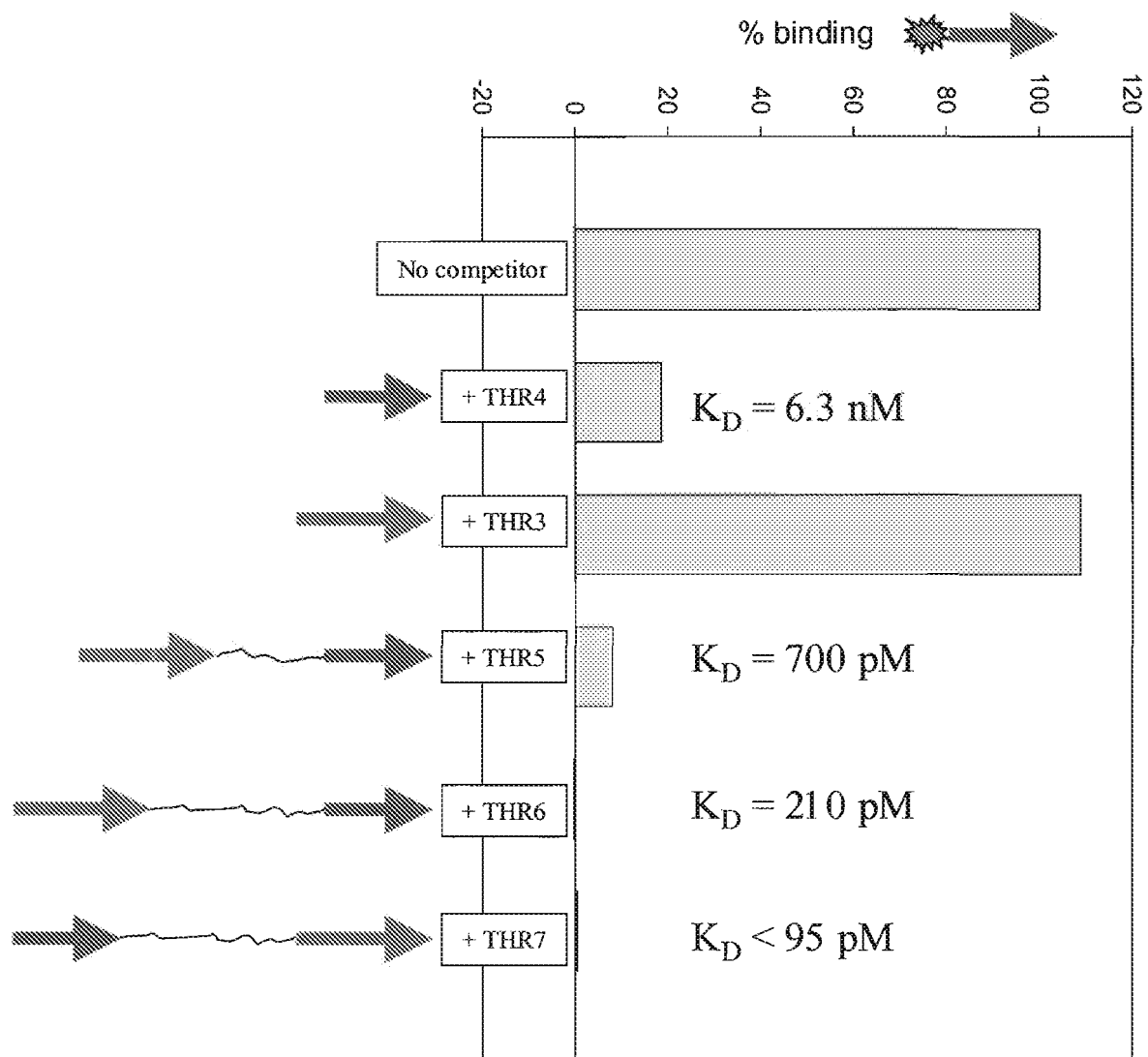
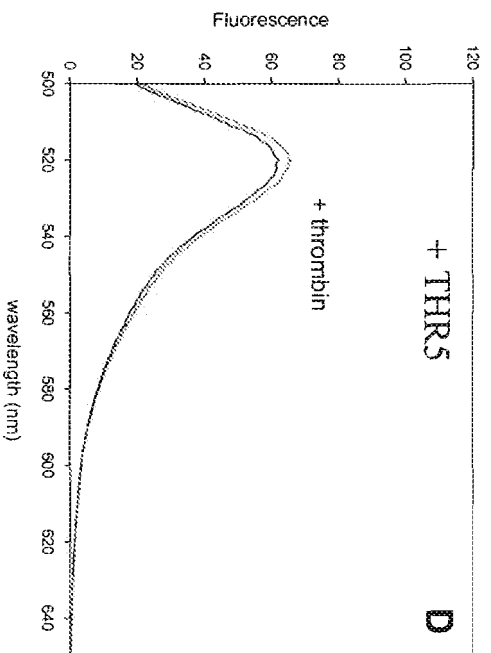
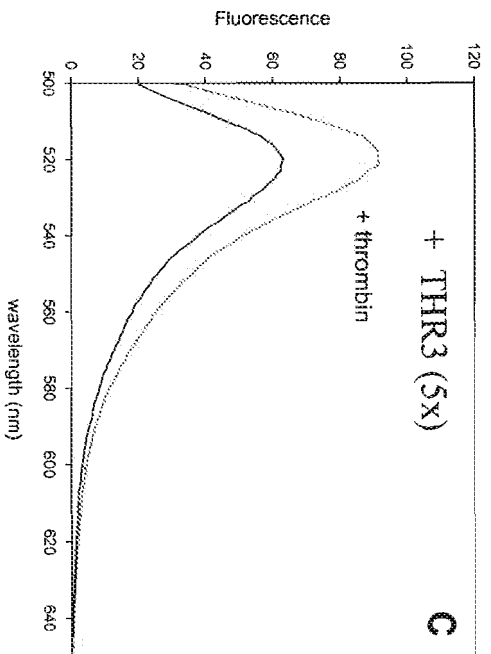
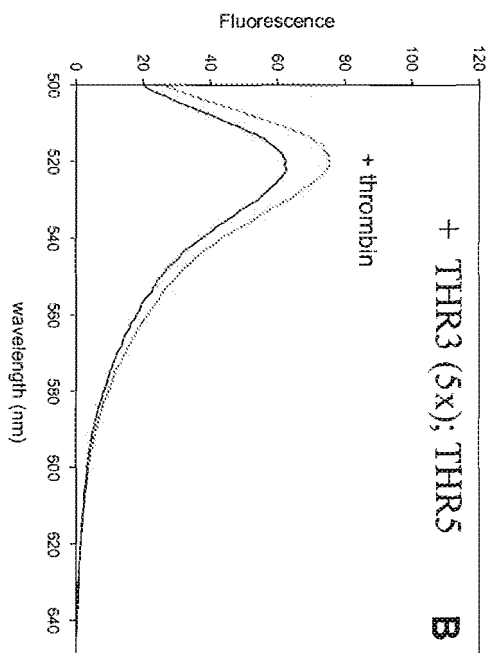
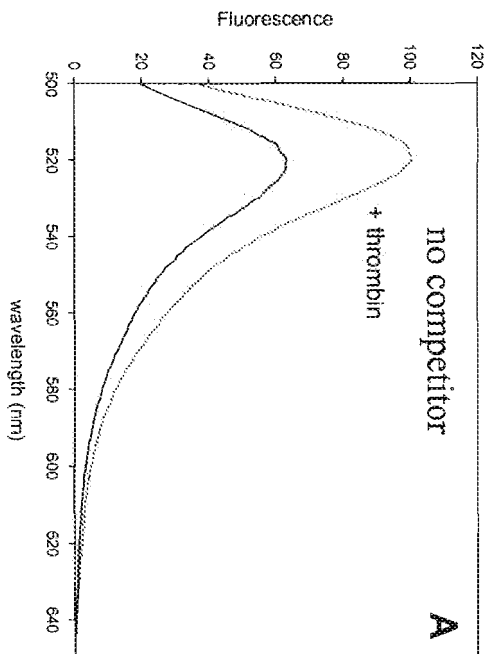


Fig. 7



**Figs. 8A-8D**





Figs. 9A-9B

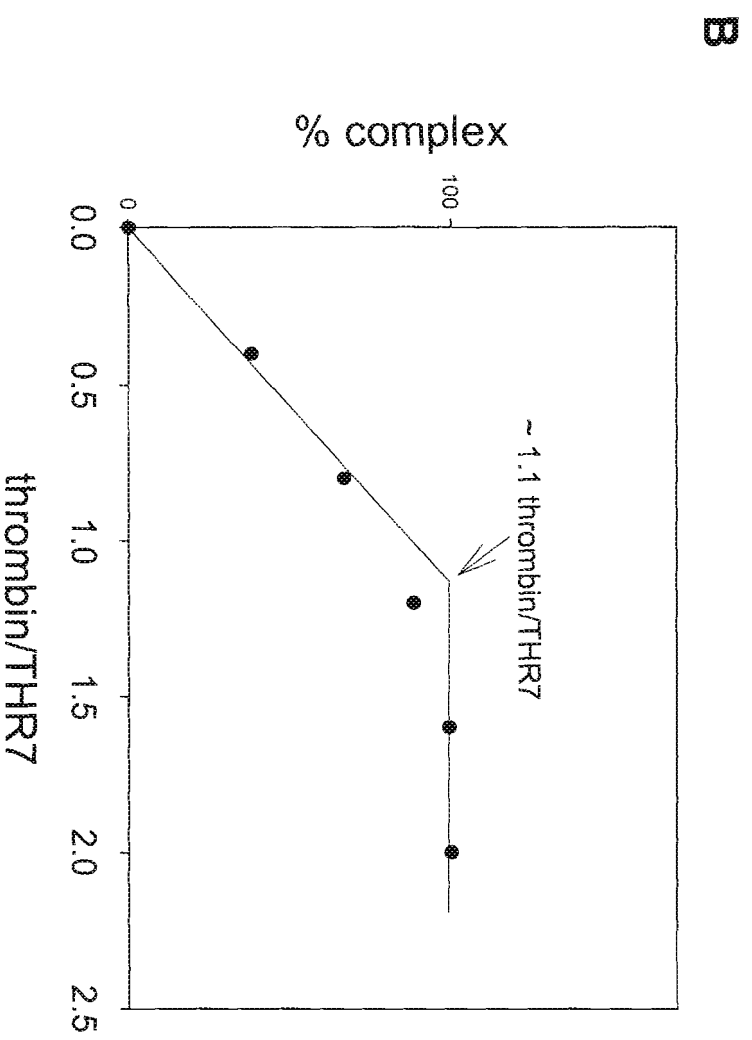
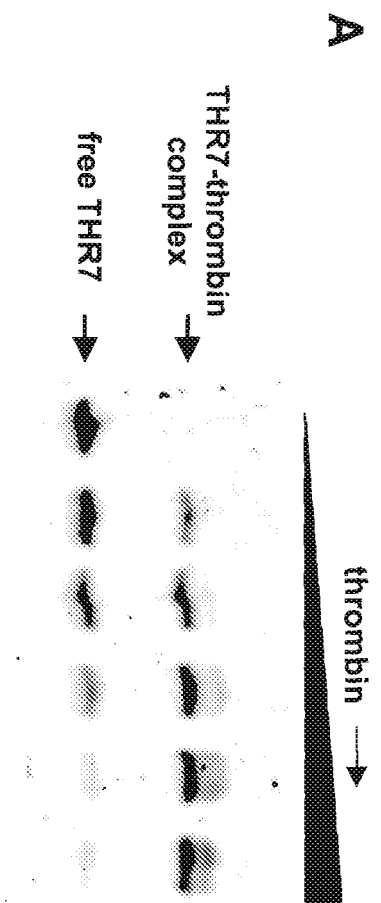
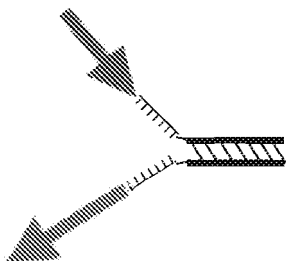


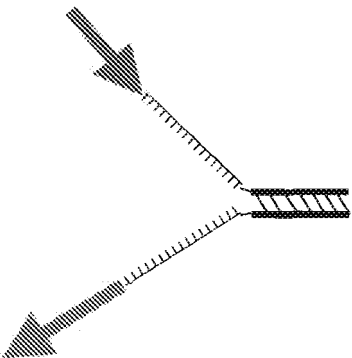
Fig.10

60-18 [29]

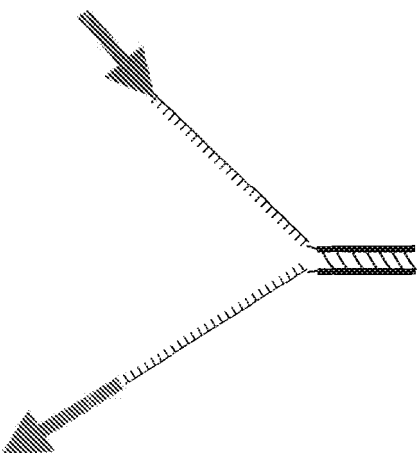
G15D



THR14  
GGT TGG TGT GGT TGG TTT TTT T CTG TCG TTA GTG AAG GTT  
THR15  
AAC CTT CAC TAA CGA CAG TTT TTT T AGT CCG TGG TAG GGC  
AGG TTG GGG TGA CT

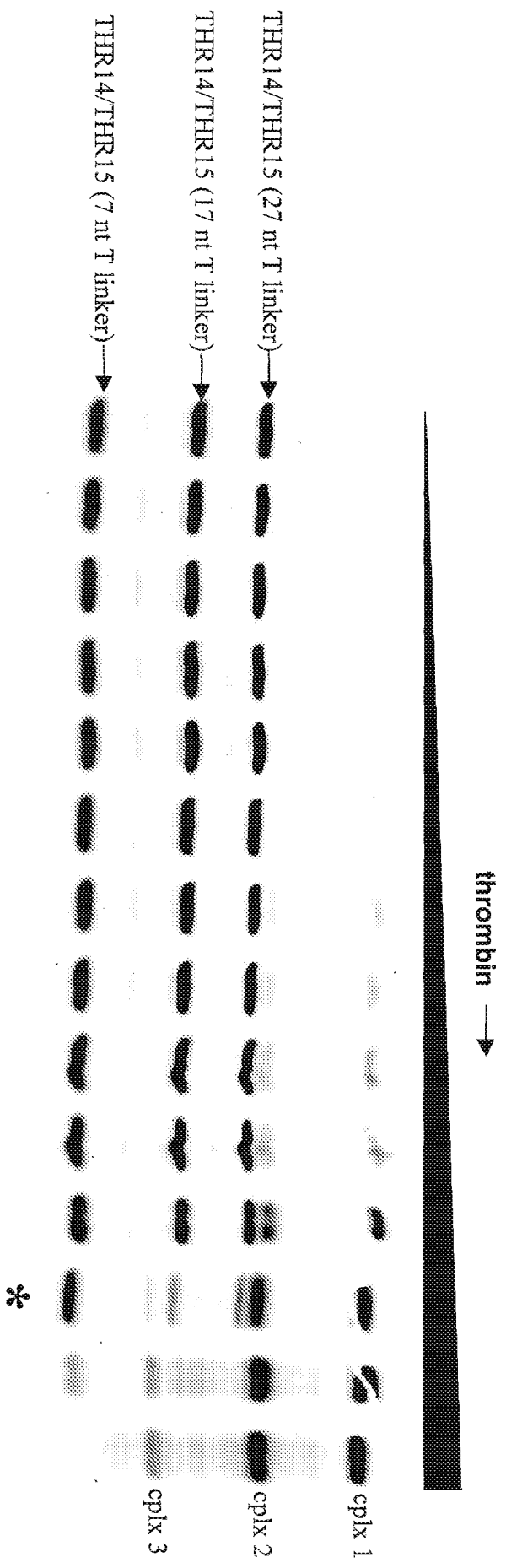


THR16  
GGT TGG TGT GGT TGG TTT TTT TTT TTT TTT TT CTG TCG TTA GTG  
AAG GTT  
THR17  
AAC CTT CAC TAA CGA CAG TTT TTT TTT TTT TTT TT AGT CCG TGG  
TAG GGC AGG TTG GGG TGA CT

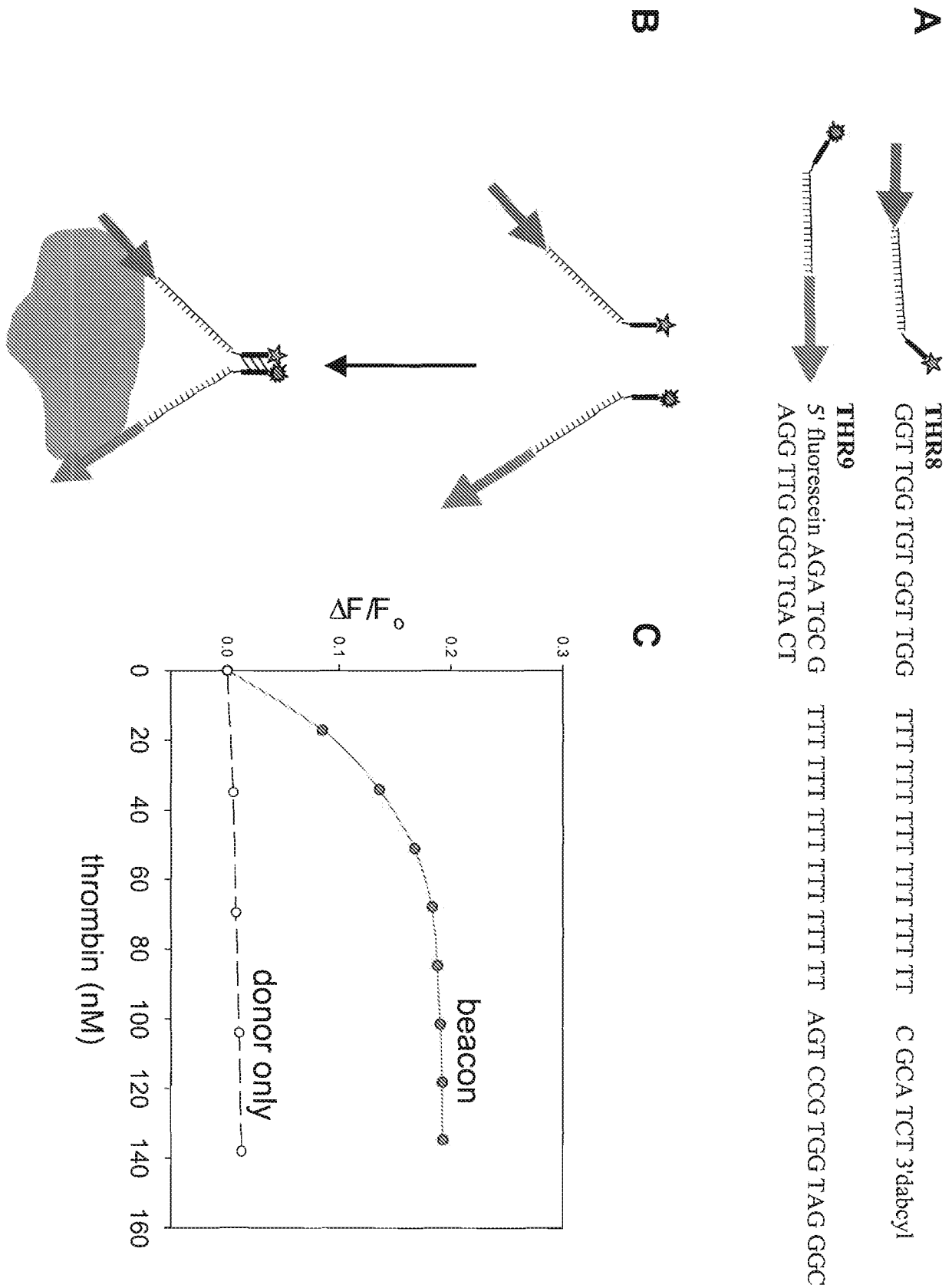


THR18  
GGT TGG TGT GGT TGG TTT TTT TTT TTT TTT TTT TTT CTG TCG  
TTA GTG AAG GTT  
THR19  
AAC CTT CAC TAA CGA CAG TTT TTT TTT TTT TTT TTT TTT AGT  
CCG TGG TAG GGC AGG TTG GGG TGA CT

Fig. 11



Figs. 12A-12C



Figs. 13A-13C

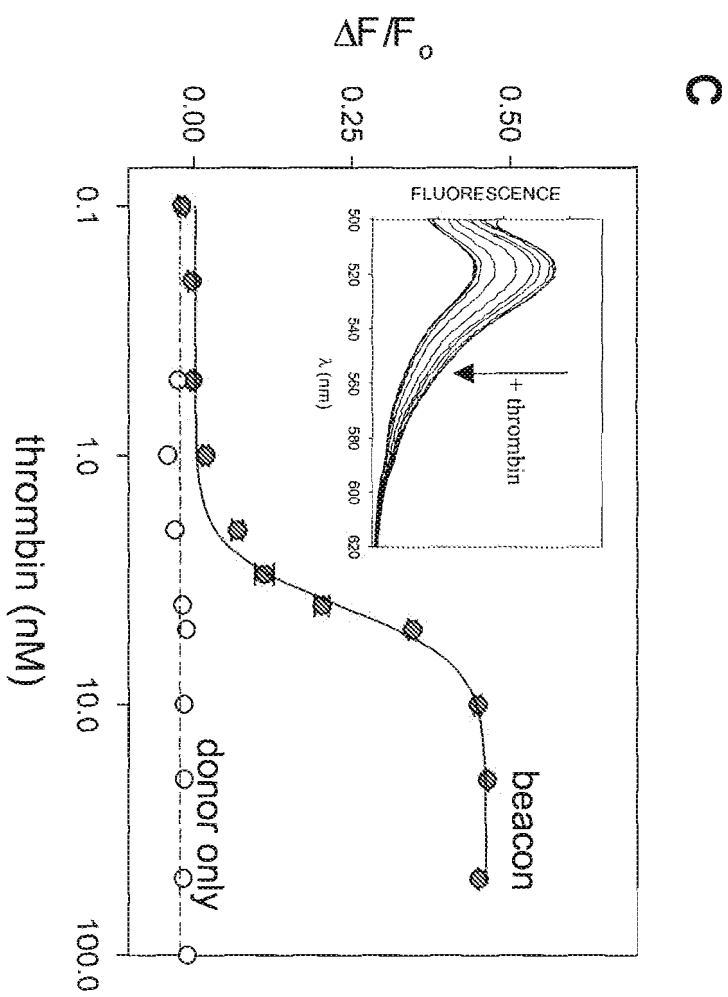
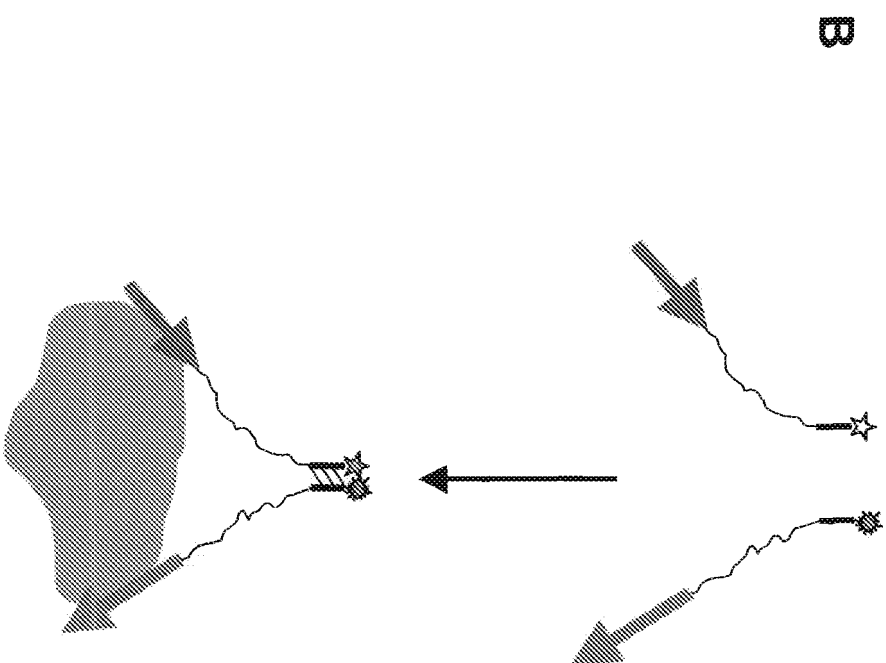
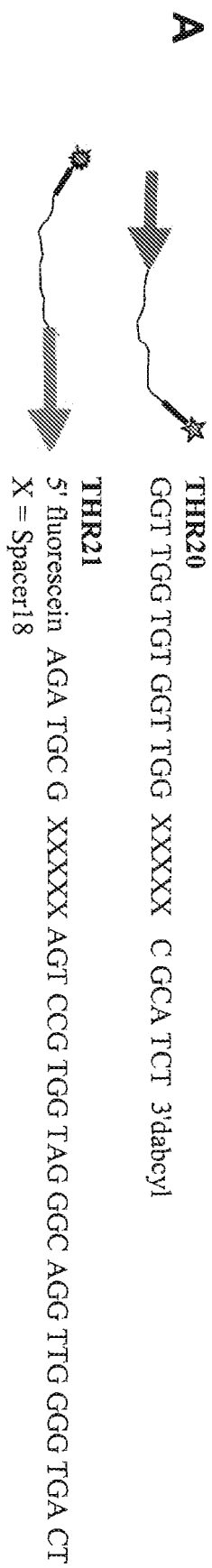
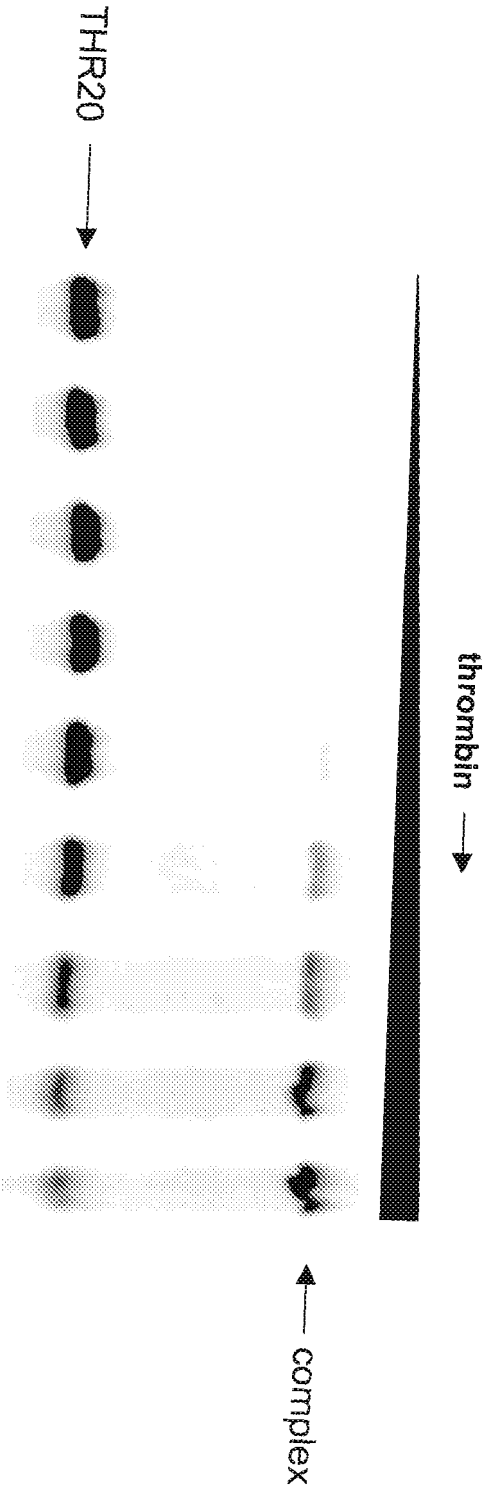


Fig. 14



Figs. 15A-15B

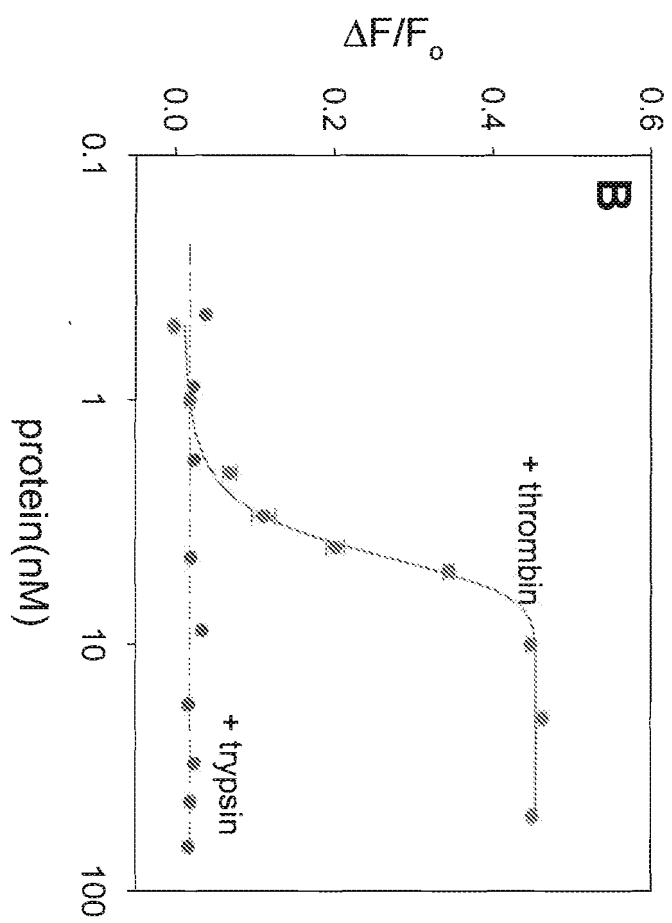
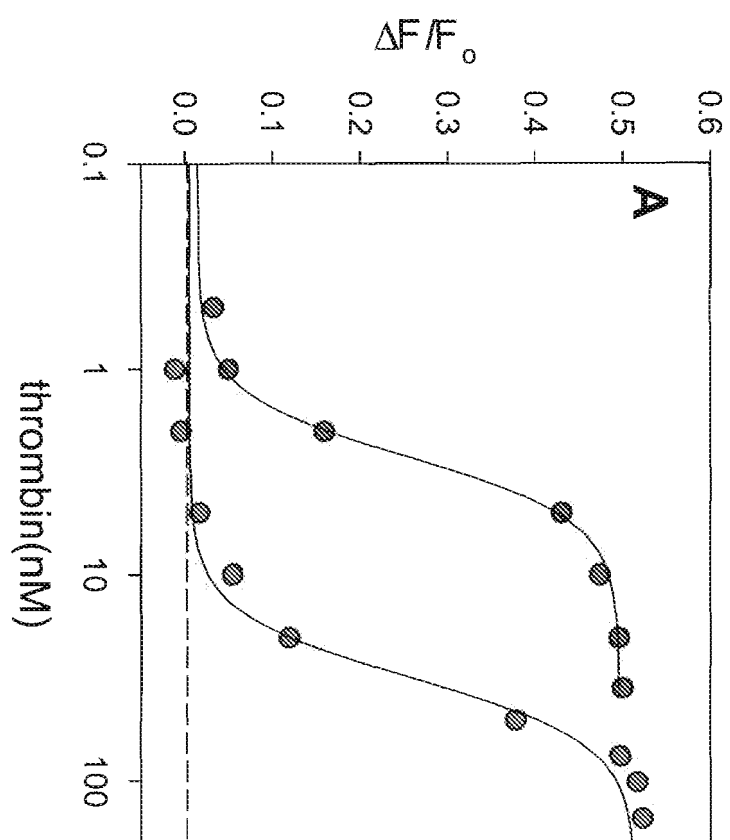
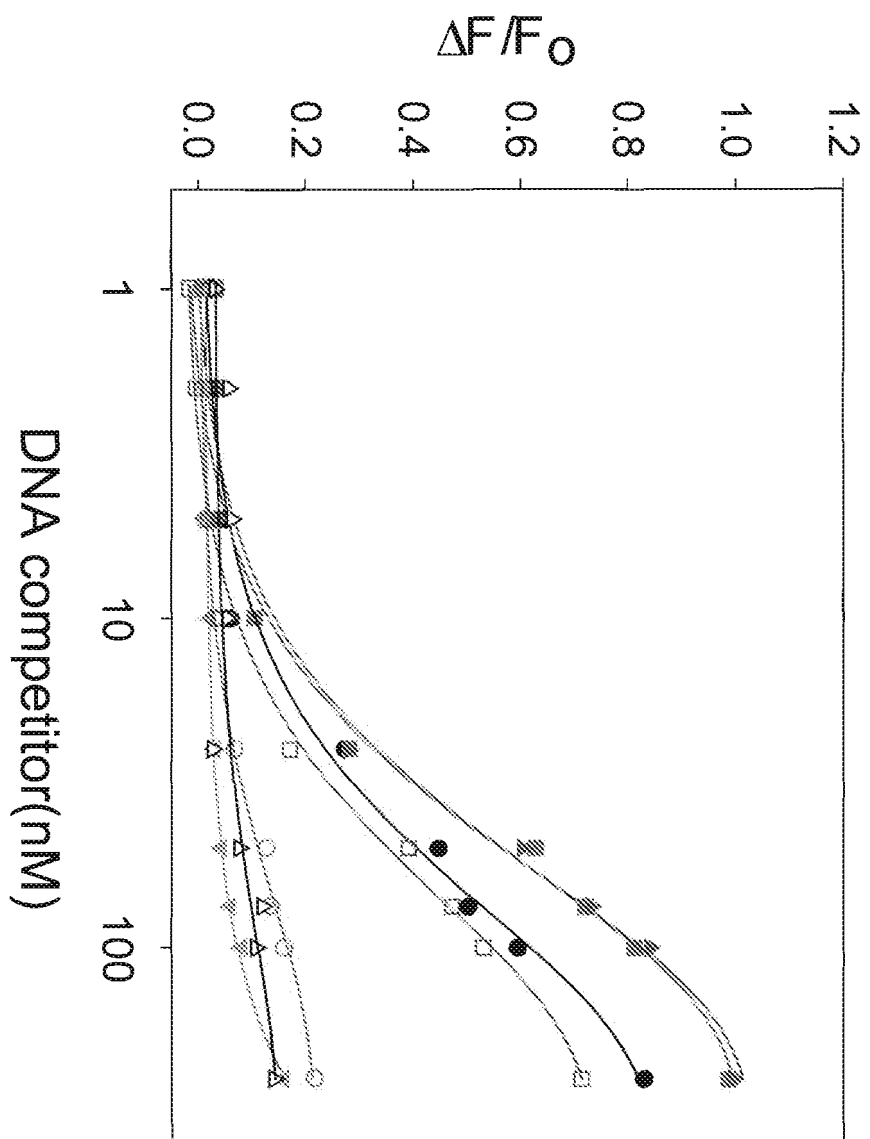
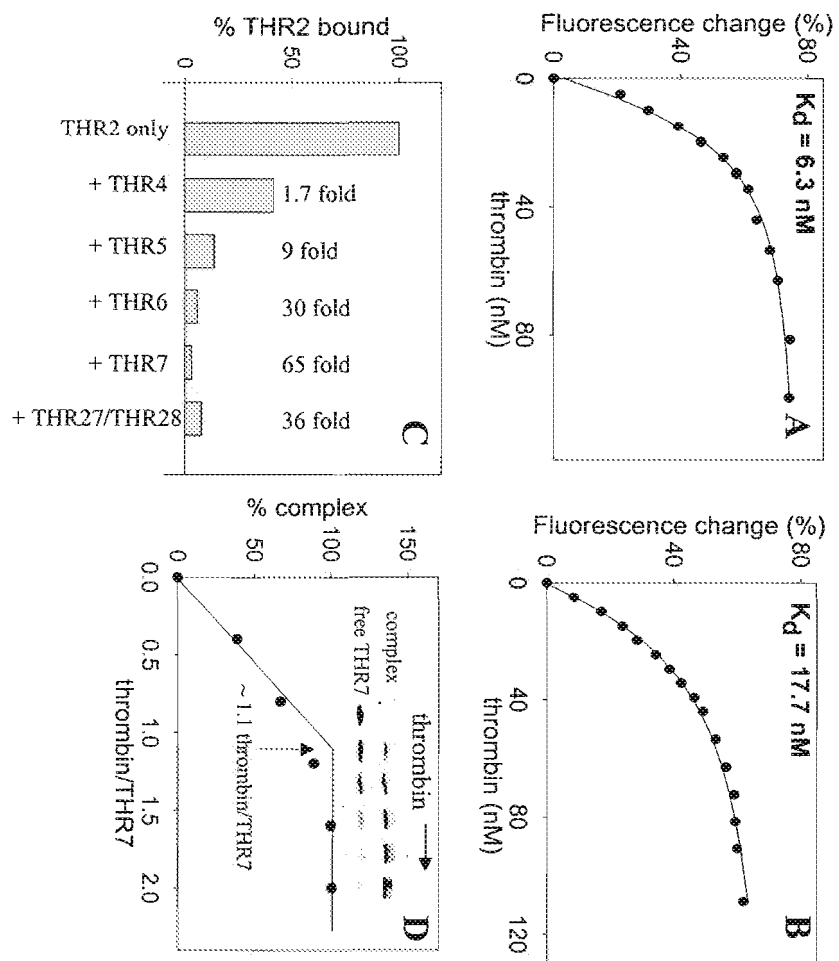


Fig. 16



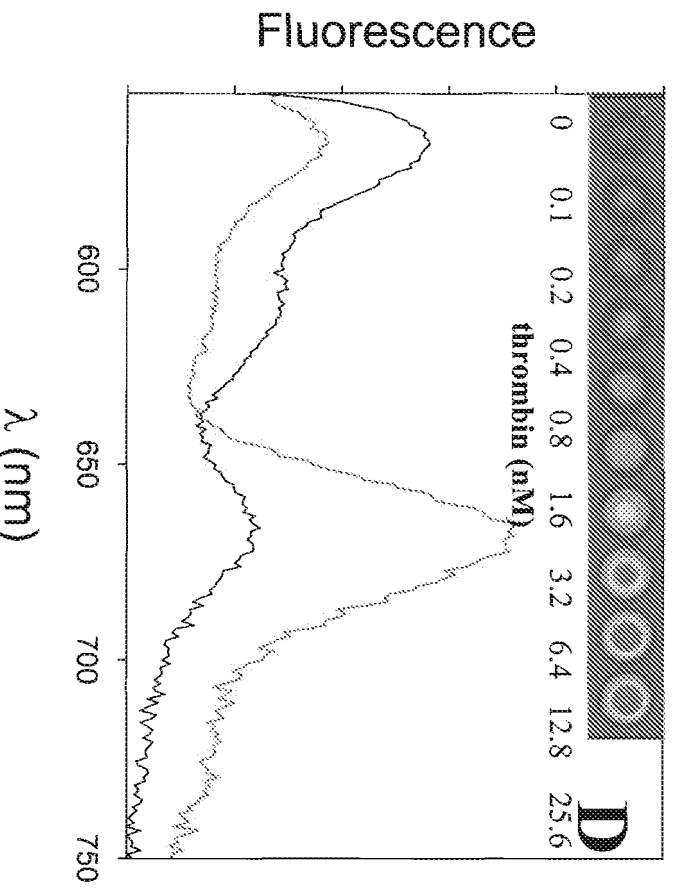
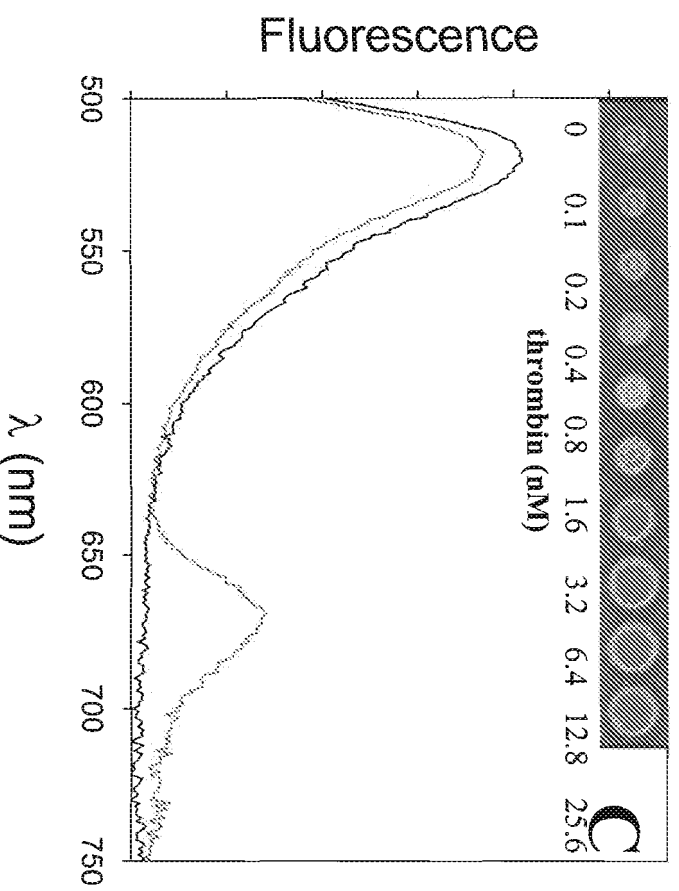
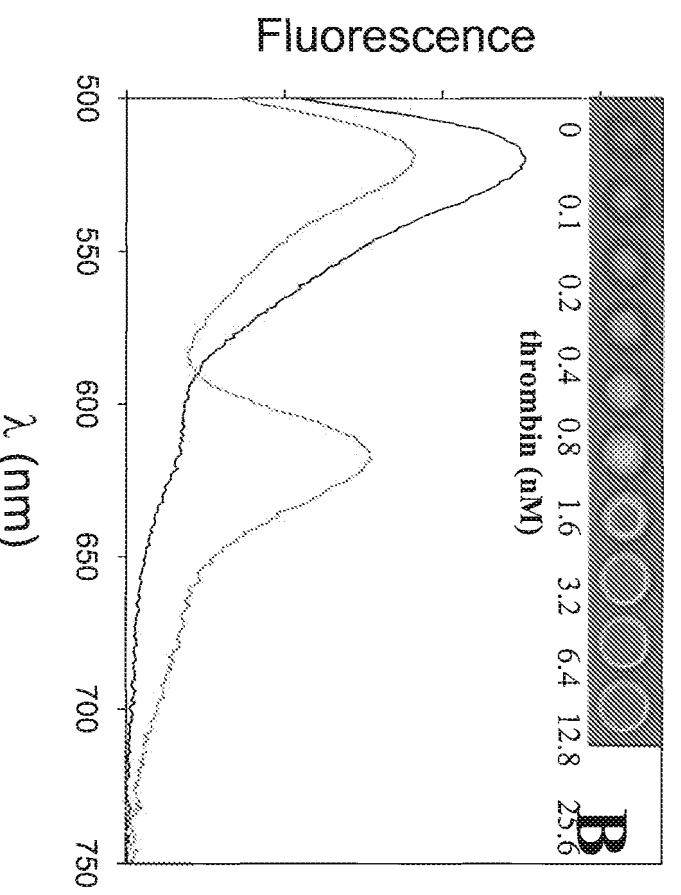
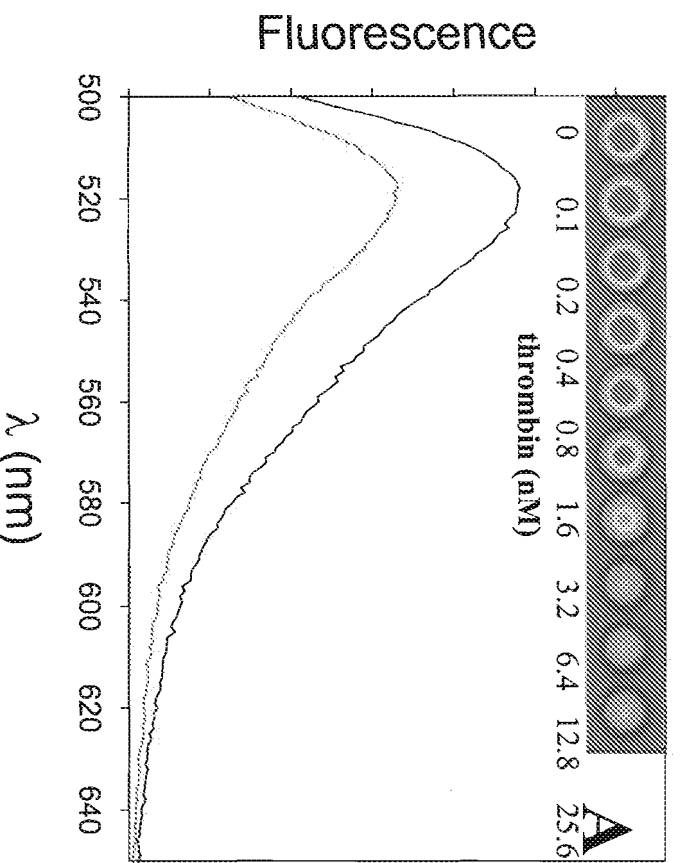


Figs. 17A-17D



Figs. 18A-18D

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Figs. 19A-19F

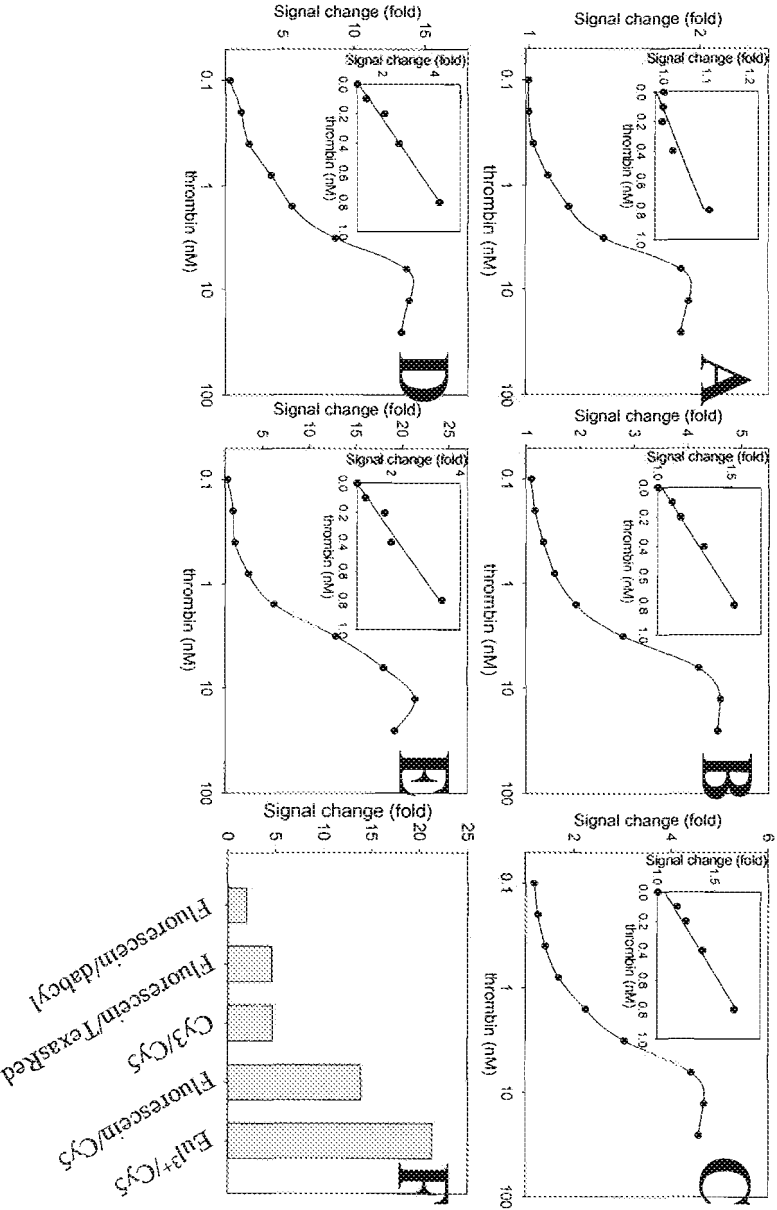
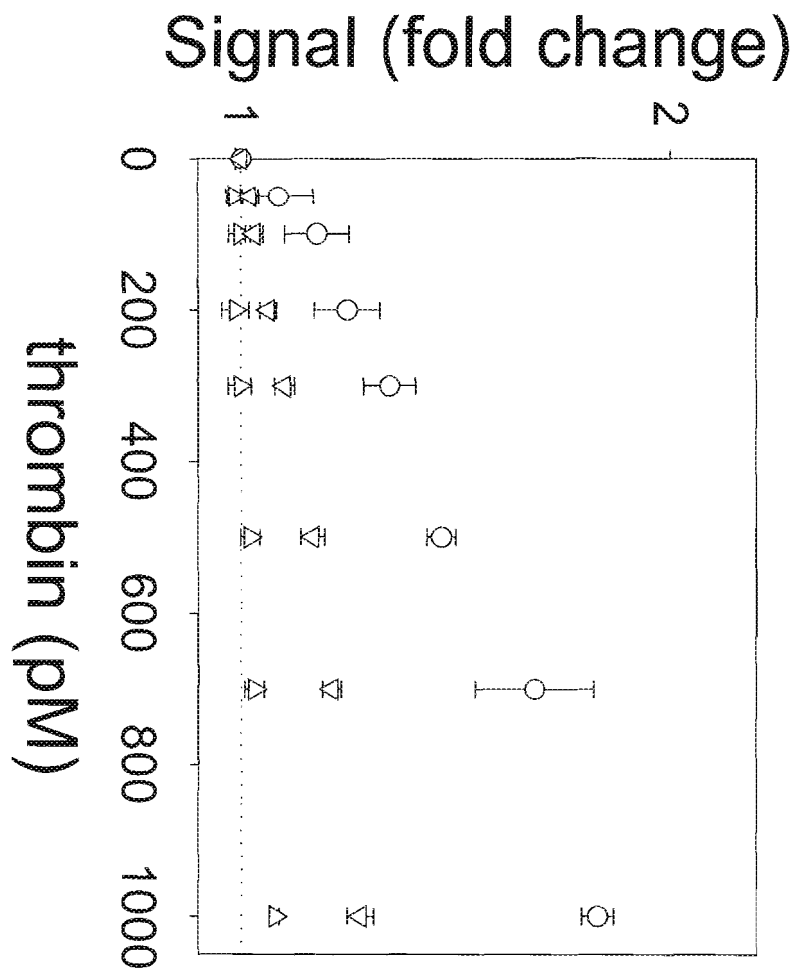


Fig. 20



Figs. 21A-21B

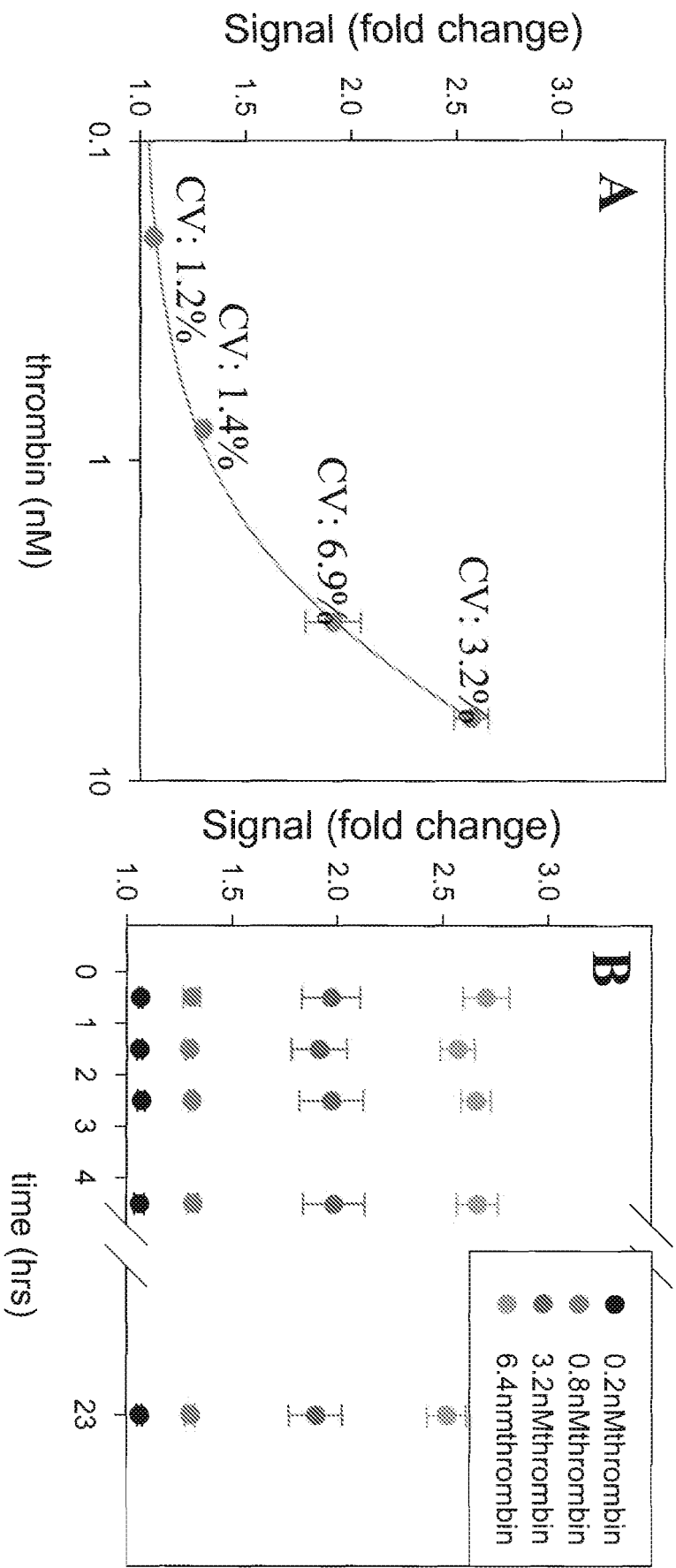
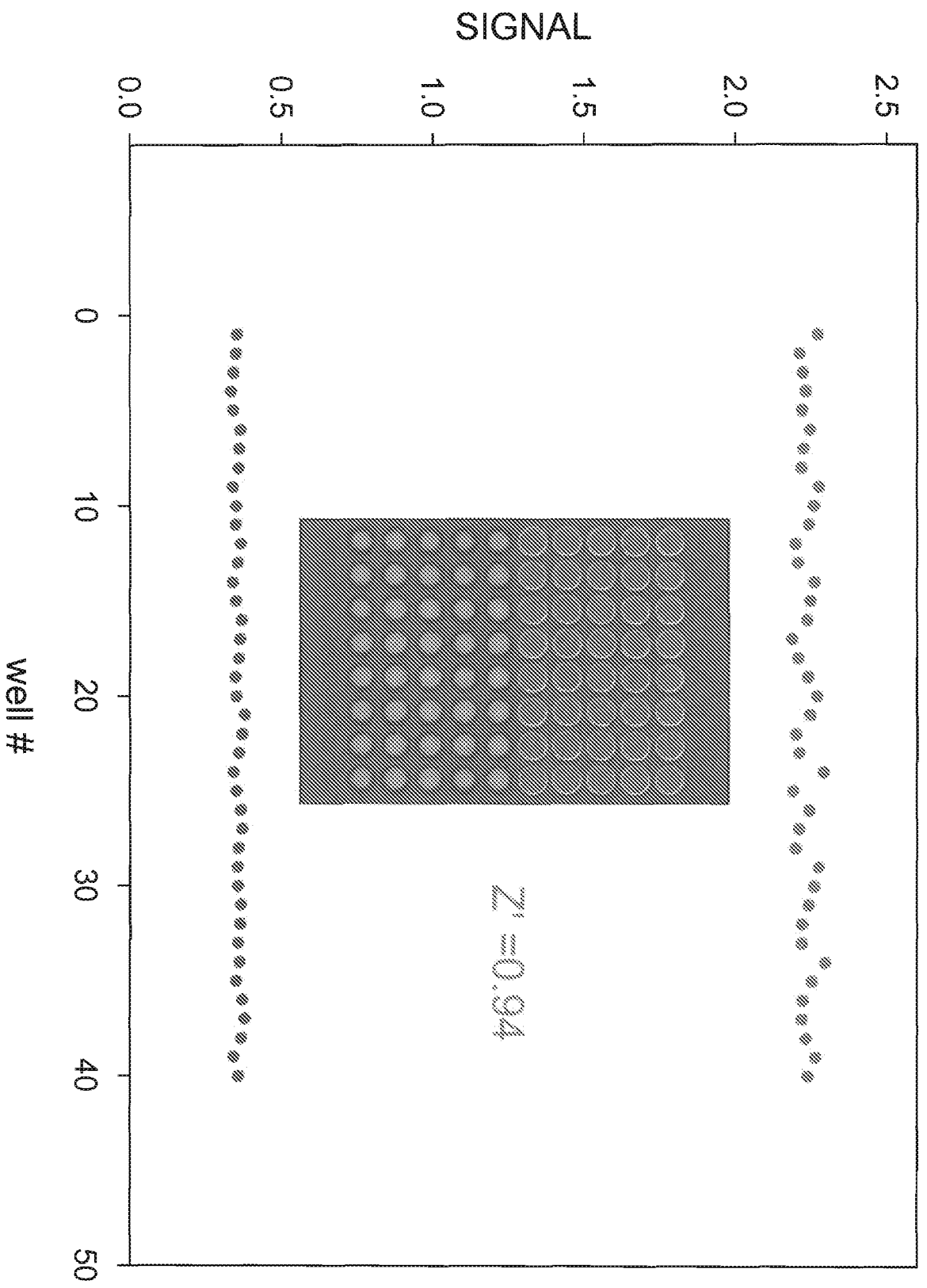
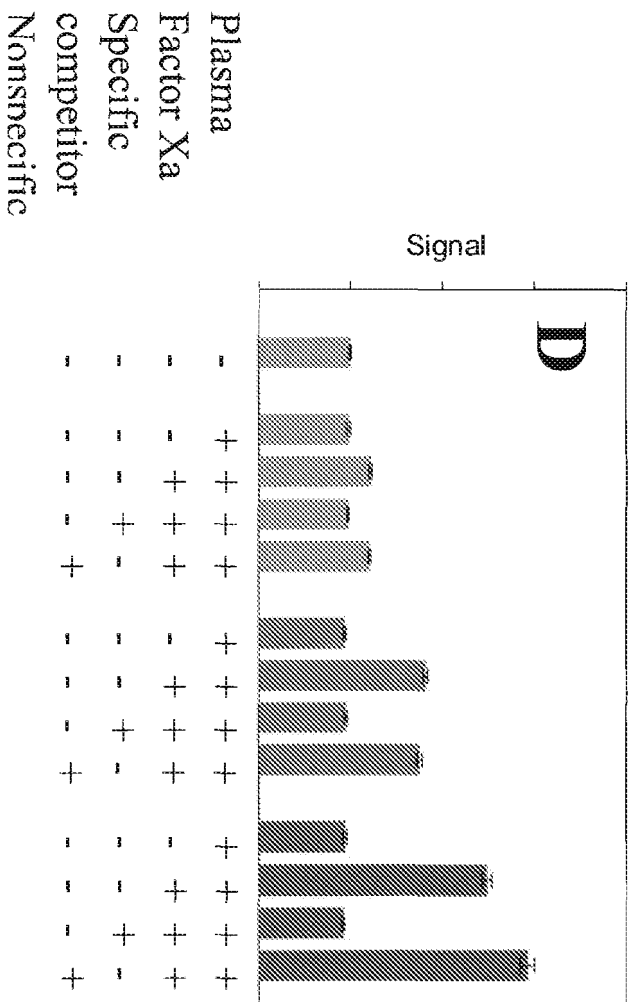
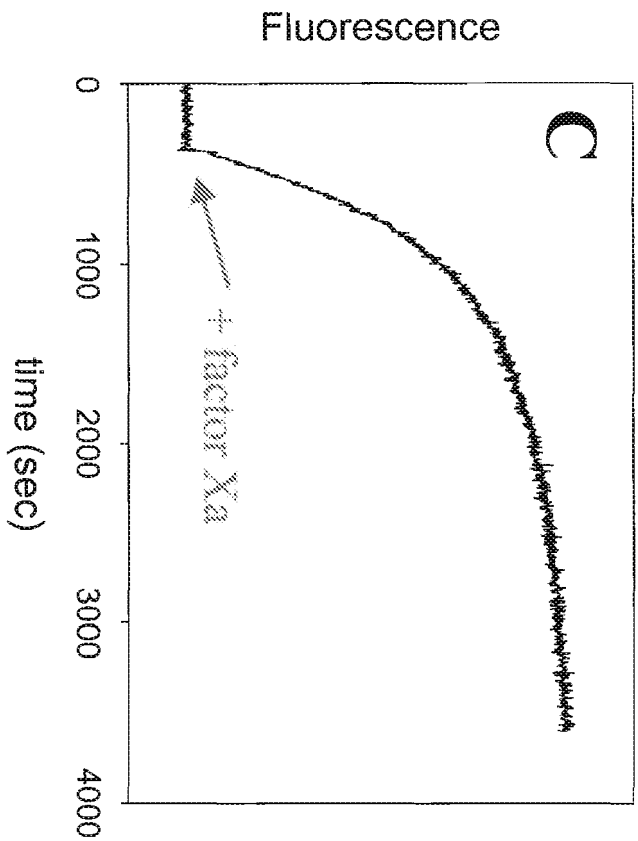
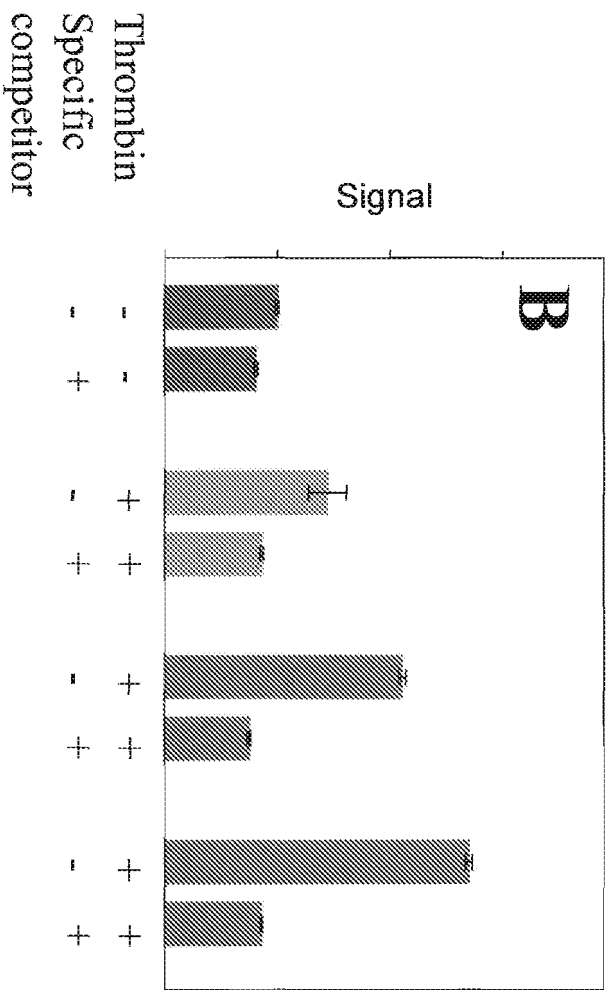
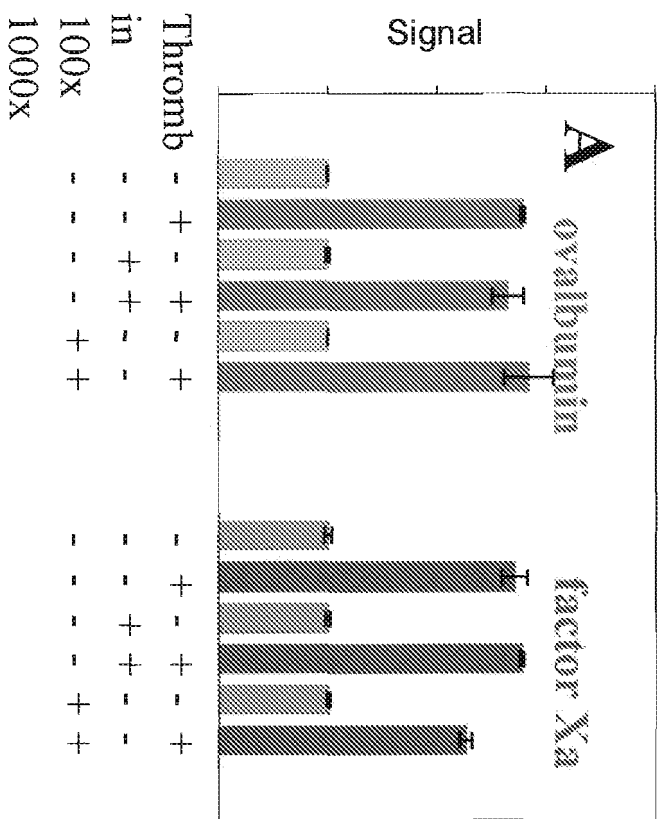
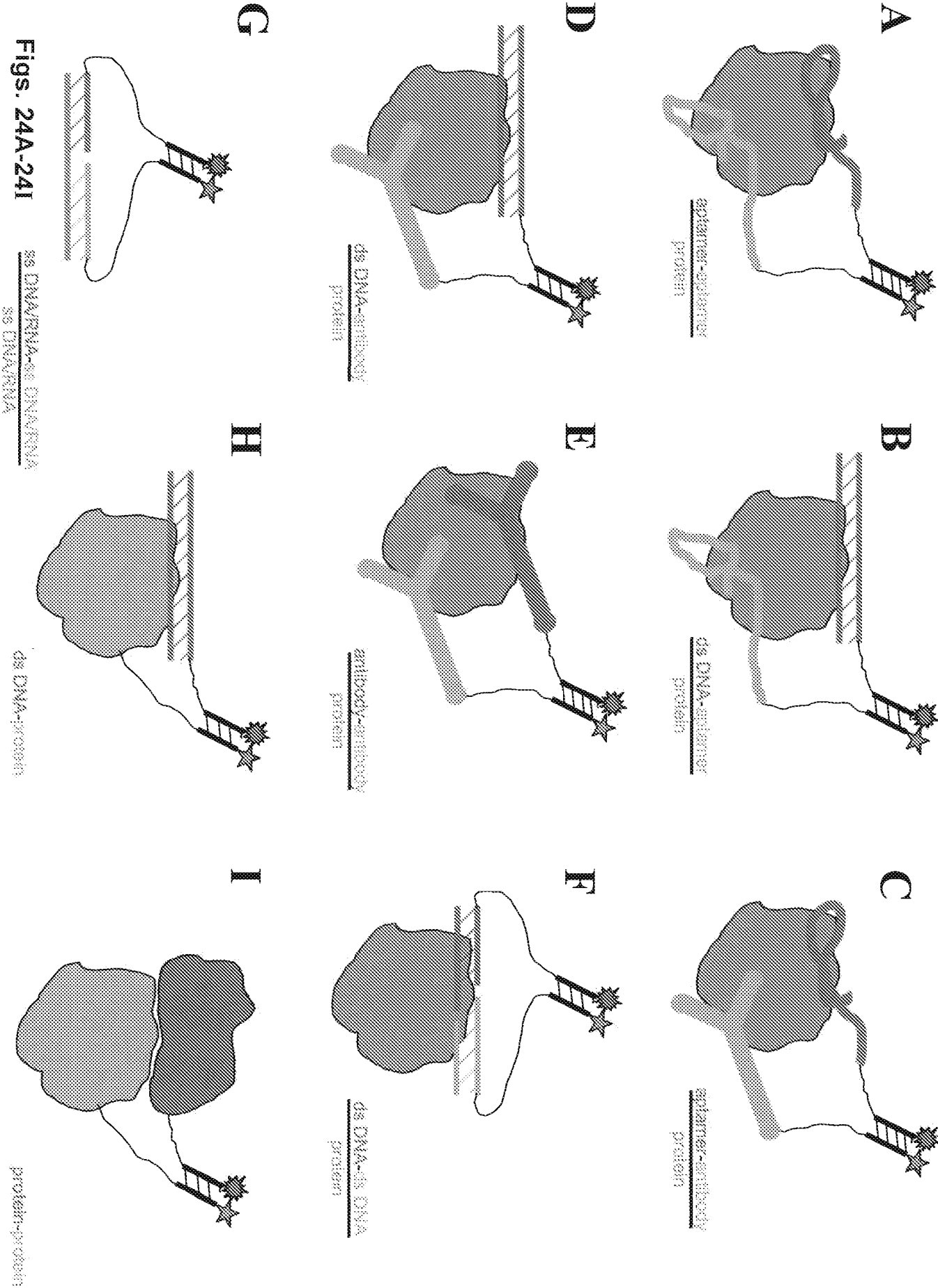


Fig. 22



Figs. 23A-23D

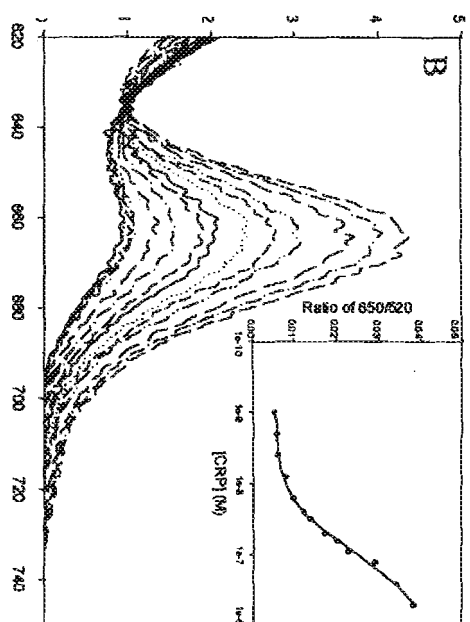
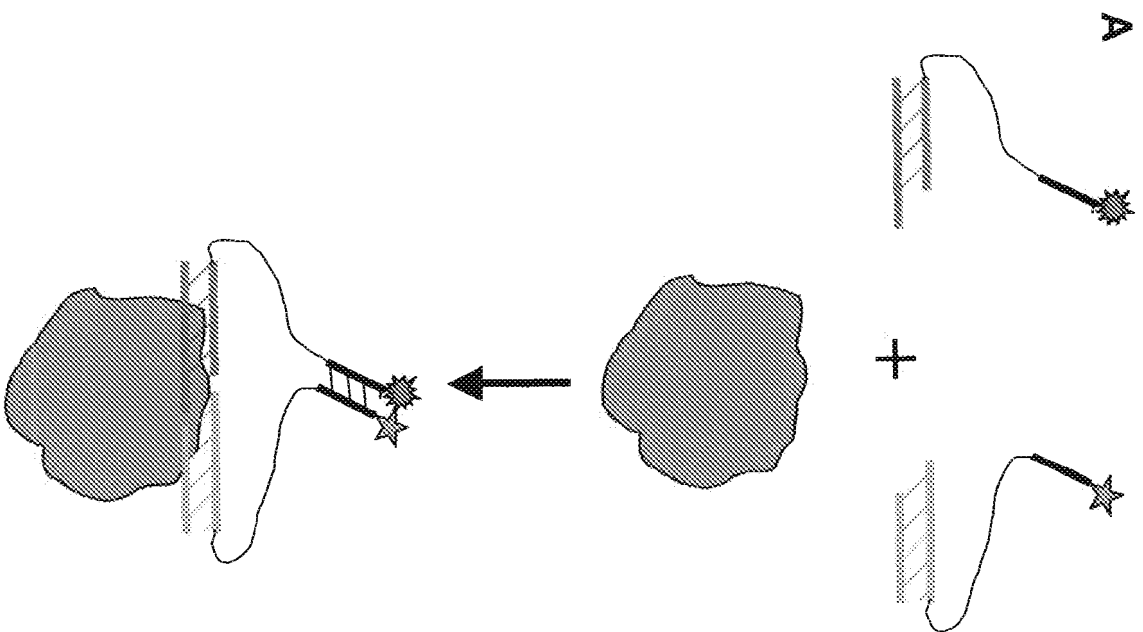




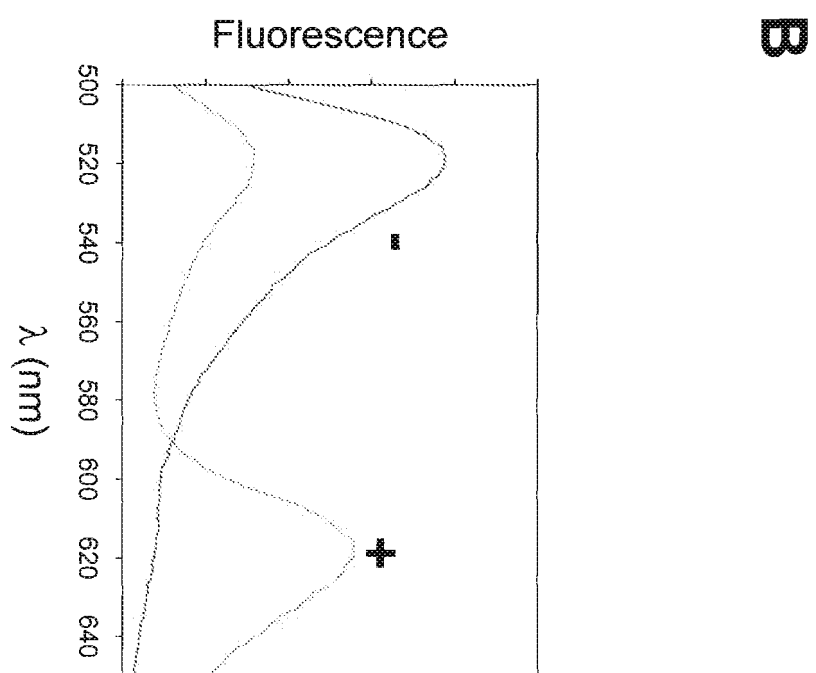
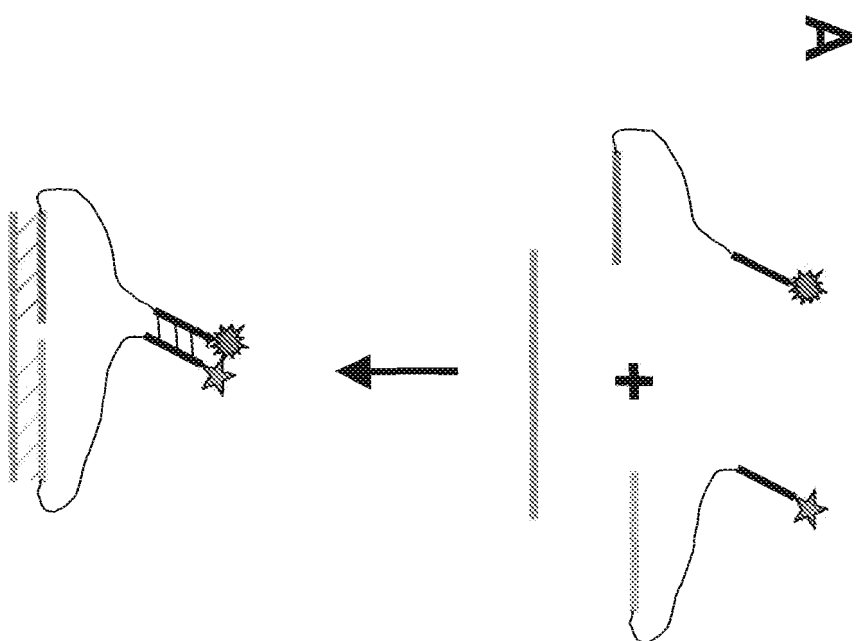
Figs. 24A-24I



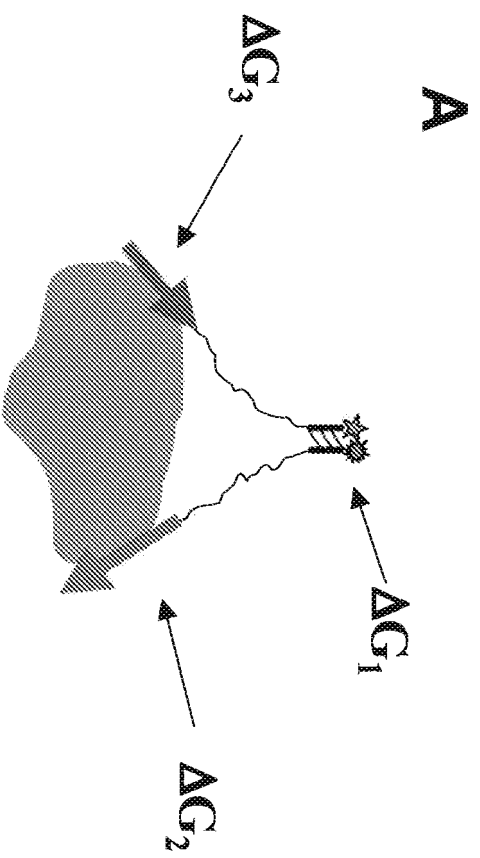
Figs. 25A-25B



Figs. 26A-26B

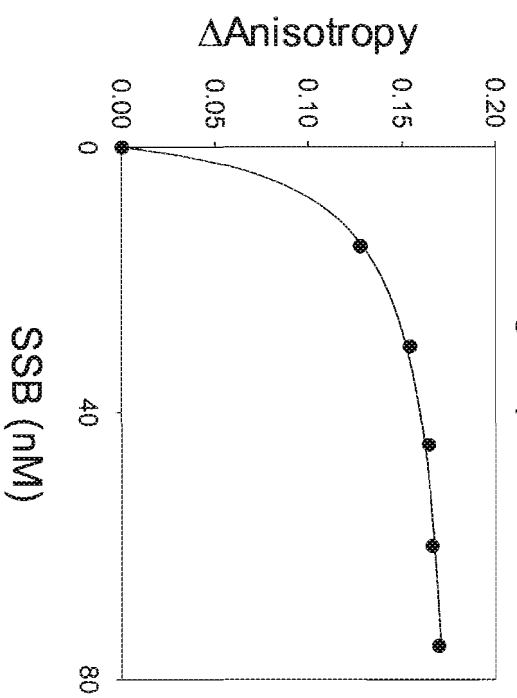


Figs. 27A-27C



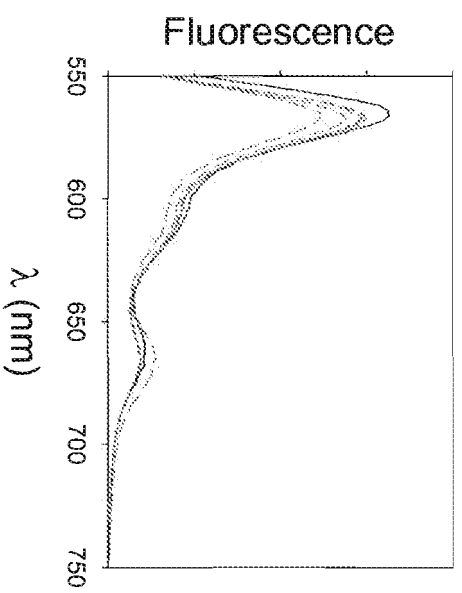
**B**

Nonspecific binding to single aptamer



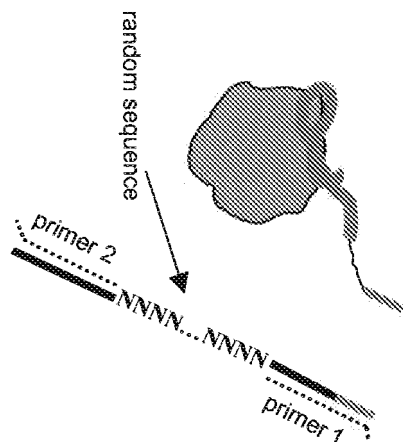
**C**

No signal with the beacon



Figs. 28A-28C

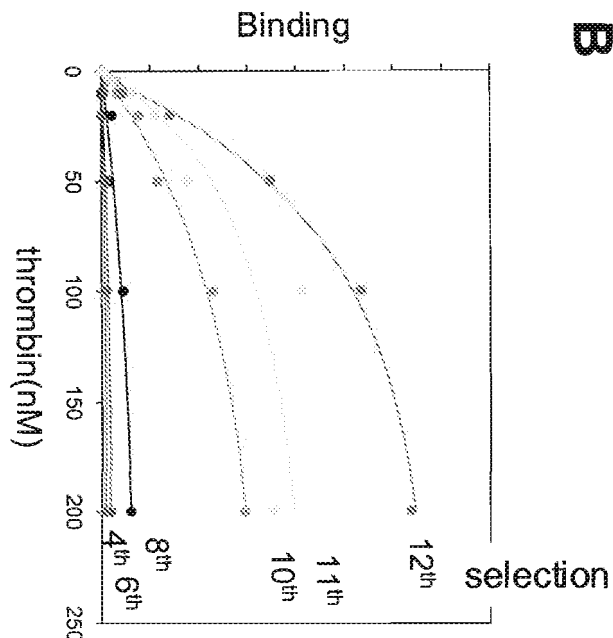
A



C

```
clone1  --GGGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone9  --GAGCGT--ATGAGTATAGCTTAAAGG--AGGCTTAAAGG--
clone7  --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone12 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone2  --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone3  --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone4  --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone8  --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone23 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone22 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone11 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone32 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone33 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone29 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone31 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone5  --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone6  --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone35 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone10 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone34 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone20 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone21 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone24 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone26 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone13 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone15 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone16 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone19 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone25 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone17 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone14 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone27 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone28 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone30 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
clone18 --GAGCGG--AGGAGGCTTAAAGCTTAAAGG--AGGCTTAAAGG--
ruler  1.....10.....20.....30.....40.....50..
```

B

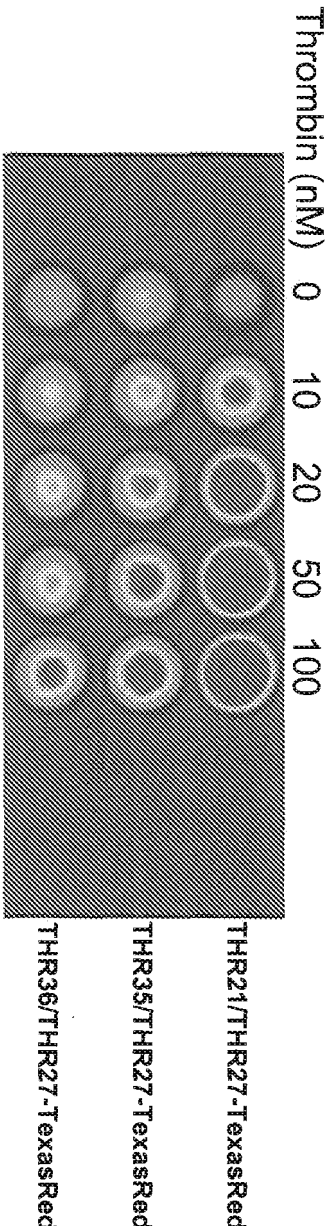


Figs. 29A-29B

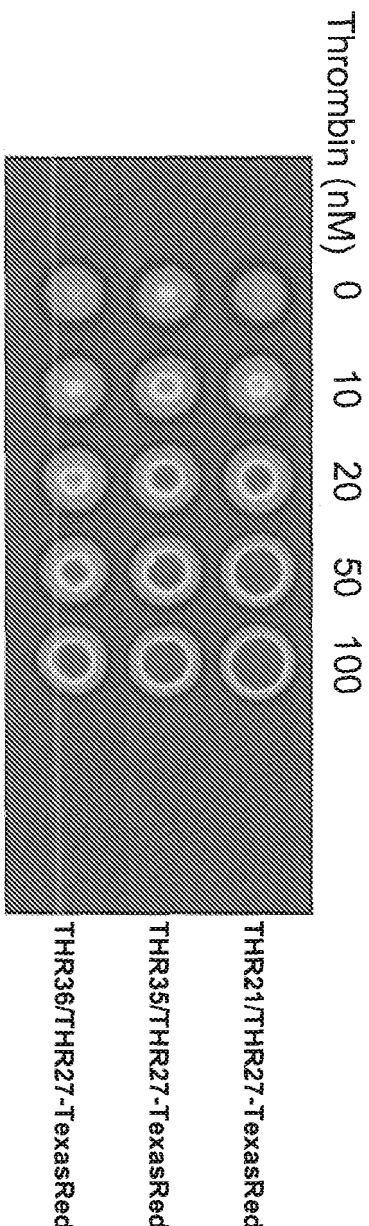
clones 20,21,24,26

5'fluoresceinAGATGGCCXXXXXAGGTTGGGGTACTACGTATCAATGGGTATGGCGTGGCGGTAAACGC  
5'fluoresceinAGATGGCGXXXXXAGTGAAGGTTGGGGTACTACGTATCAATGGGTATGGCGTGGCGGTAAACGCCATAT

A

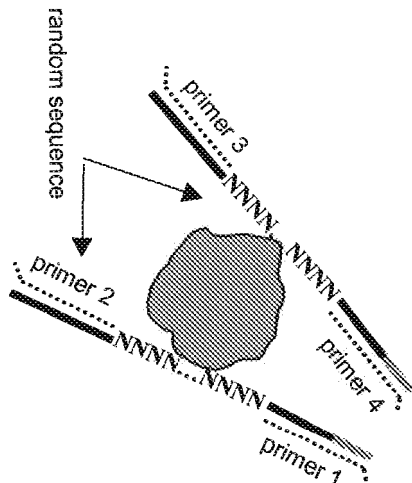


B

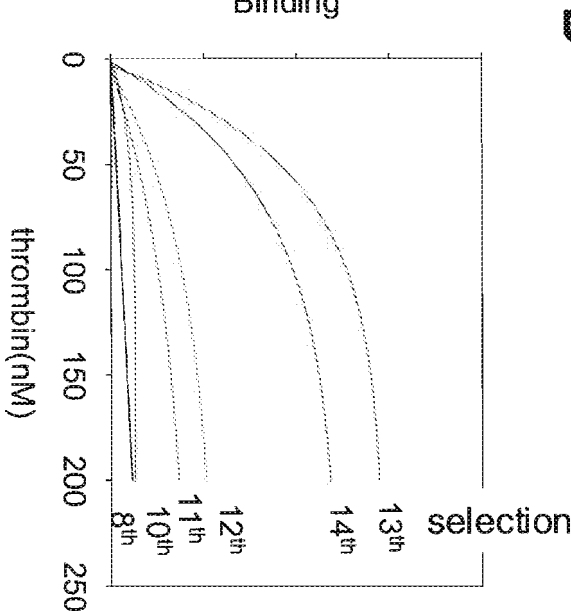


Figs. 30A-30C

A



B

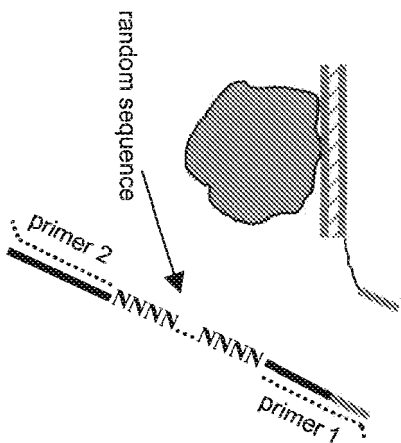


C

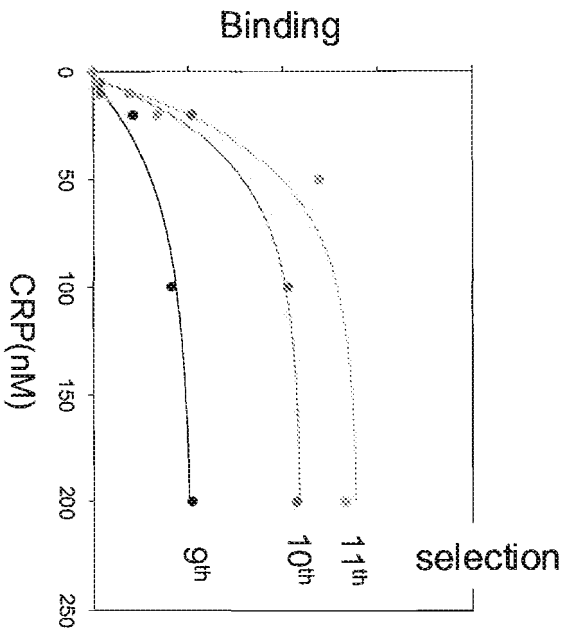
```
clone1-1  --GGGTAGGGTGGTGGTAATAGGG--ATTGGCAT-----30
clone1-2  --GGGTAGGGTGGTGGTAATAGGG--ATTGGCAT-----30
clone1-4  --GGGTAGGGTGGTGGTAATAGGG--ATTGGCAT-----30
clone1-5  --GGGTAGGGTGGTGGTAATAGGG--ATTGGCAT-----30
clone1-9  --GGGTAGGGTGGTGGTAATAGGG--ATTGGCAT-----30
clone2-4  --GGTAGGGTGGTAAATATAGGGGATGGCAG--30
clone2-7  --GGTAGGGTGGTAAATATAGGGGATGGCAG--30
clone2-10 --GGTAGGGTGGTAAATATAGGGGATGGCAG--30
clone2-8  --TAGGATGGGTAGGGTGGTCCCAAGGATGGC--30
clone2-9  --TAGGATGGGTAGGGTGGTCCCAAGGATGGC--30
clone2-12 --TAGGATGGGTAGGGTGGTCCCAAGGATGGC--30
clone2-14 --TAGGATGGGTAGGGTGGTCCCAAGGATGGC--30
clone1-8  ACGGATAGGATGGGTAGGGTGGTCCGCTTA-----30
clone2-2  --TAGGATGGGTAGGGTGGTCAACTATGGGG--30
clone1-7  --AATGGGAGGTGGGGTGGCGGAGAGTGG--30
clone2-5  --CACAGAGAGGCGAGCGCTGAGCATAGTGC--30
clone2-13 --GGAGATGCAGGTACTGAGTAGGGAGTGTGC--30
clone2-3  --GGGTGACTGGTCAAGGAG--ATAGTACGATGC--30
clone2-11 --GATG--TGGCCAGAAAGCATTAACACGACGTAC--30
clone2-1  --AAGGCGCCCATCTGGGTCCGACGAGTACCA-----30
clone1-10 --GGGCGAAGGTACGAAAGACGATGCACGTGC--30
clone1-6  --GGTGTGGGTGG--TTATGTGTGATAGCGGGT--30
clone1-3  --GGCACAACCCGATATGCTATAGAACTGACC--30
clone2-6  --CCATCGACACATAGGGTACACGCGCCTTGC--30
ruler 1.....10.....20.....30.....40
```

Figs. 31A-31C

A



B

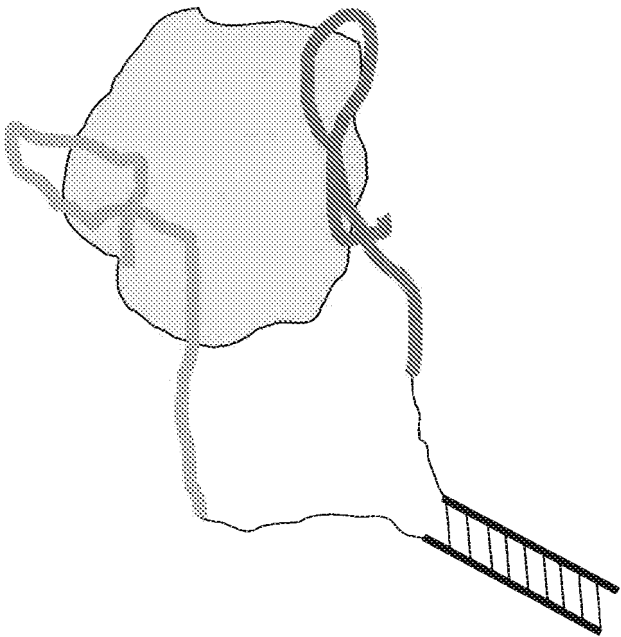


C

```
clone1  ATGCAAGGCGCTGGCTGGTAAAGGATGATCTGAGTAA----- 33
clone23  -----GAGGATTAAGGACATCACTGATGAAATAGGCGCATGAG----- 33
clone3  -----AAAGGACATCACTGATGAAATAGGCGCGCATCTGAG----- 33
clone17  -----ACAAAGGACATCACTGATGAAATAGGCGCGCATCTGAG----- 33
clone15  -----CAGGACATGCGCAGAGAGATGTCAGGCGCGCATCTGAG----- 33
clone7  -----AGGAGAAAGGCGCATCACTGATGAAATAGGCGCGCATCTGAG----- 33
clone20  -----AAAGGAGAAAGGCGCATCACTGATGAAATAGGCGCGCATCTGAG----- 33
clone5  -----CGAAAGGCGCATCACTGATGAAATAGGCGCGCATCTGAG----- 33
clone10  -----ACAAAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone13  -----GCATATAGGCGCATCACTGATGAAATAGGCGCGCATCTGAG----- 33
clone2  -----AAAGGAGAAAGGCGCATCACTGATGAAATAGGCGCGCATCTGAG----- 33
clone6  -----CAGGAGAGGCGCATCACTGATGAAATAGGCGCGCATCTGAG----- 33
clone9  -----CGACAGGAGAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone16  -----CGACAGGAGAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone21  -----ACGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone24  -----GAGGAGAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone22  -----AGGCGAGAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone8  -----ATTAAGAGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone14  -----GCAGAGAGAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone18  -----ACCGAGAGAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone12  -----ATGAGAGAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone19  -----CGAGAGAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
clone11  -----ATGAGAGAGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG----- 33
ruler 1.....10.....20.....30.....40.....50.. 33
```

Figs. 32A-32B

**A**



**B**

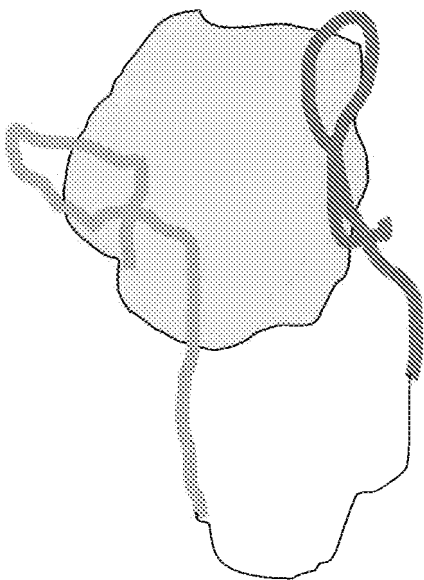




Fig 33

